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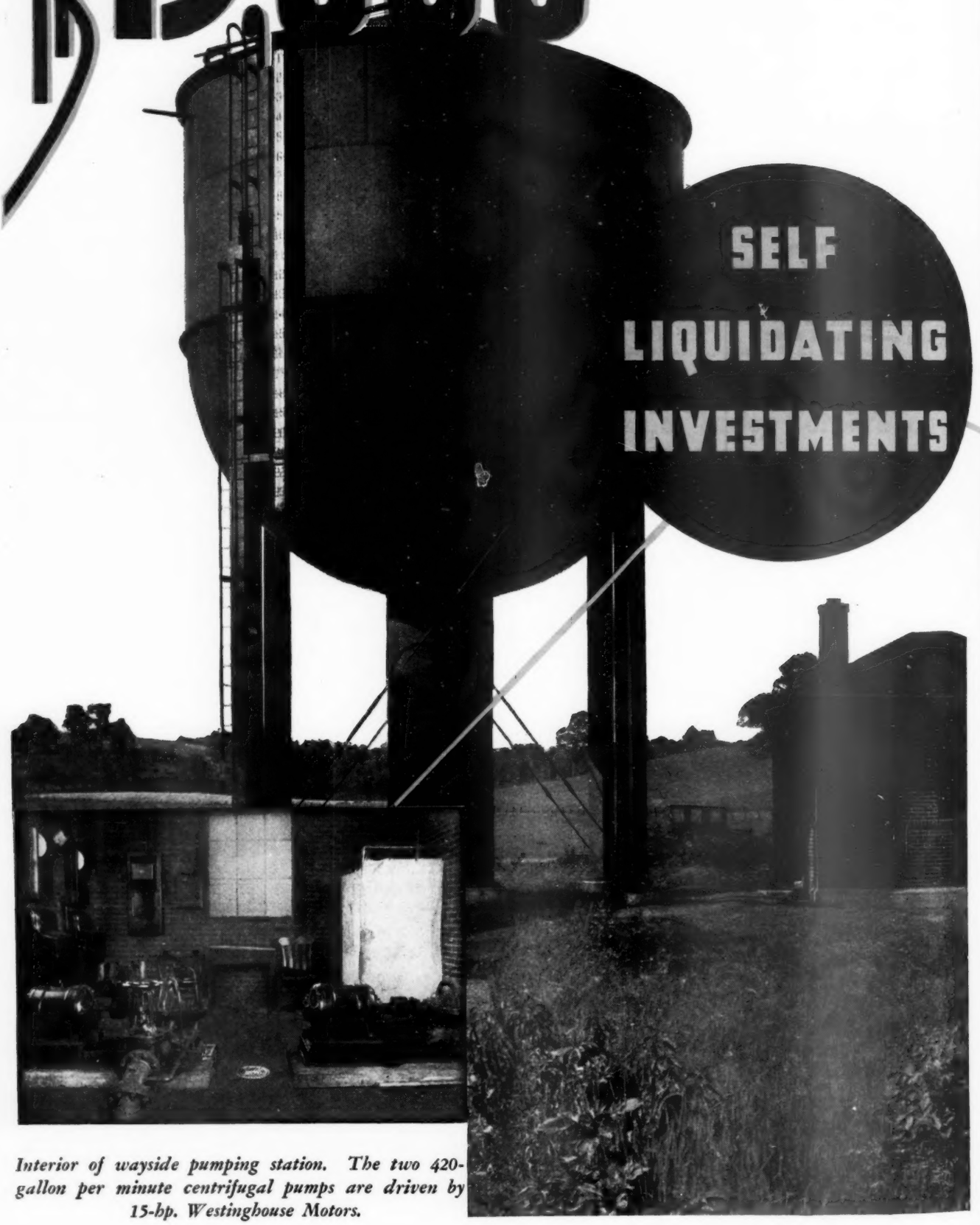
$15,000 PUMPED

SELF LIQUIDATING INVESTMENTS



Interior of wayside pumping station. The two 420-gallon per minute centrifugal pumps are driven by 15-hp. Westinghouse Motors.

The Railways in 1933 and 1934

The railways have entered the year 1934 with an unprecedented background of developments during the years 1932 and 1933. These developments have included a series of extraordinary fluctuations in their traffic and earnings caused by changes in the trend of general business. The downward trend of general business which began late in 1929 was continued until late in the summer of 1932. A marked upward trend then prevailed until the beginning of 1933, followed by a downward trend until almost the end of March. Then, during the four months April-July, inclusive, the trend was as sharply upward as it ever was in the history of the country, while during the three months ending with October, it was markedly downward. Finally, during the three months of November and December, 1933, and January, 1934, it has again been upward.

In any attempt to appraise railway prospects in 1934 it is necessary to consider the probable causes of the repeated changes in the trend of general business that have occurred during the last two years. The traffic and gross earnings of the railways are dependent upon the total volume of production and commerce. The prospective volume of production and commerce can be estimated only on the basis of their trends during the recent past and of the influences that have caused and are still causing these trends.

Influences Affecting General Business

Railway traffic and earnings were declining a year ago, whereas they are now increasing. Whether they will continue to increase will depend upon whether general business continues to improve. The fact that general business improved throughout the last one-third of 1932, and again throughout April-July, 1933, before the "recovery" policies of the present administration were in effect, is convincing evidence that the improvement again occurring now is mainly due to the same kind of natural economic causes which restored prosperity after past depressions. It is, also, a fact, however, that during the last six or seven months business has been much affected, is being much affected now and will be much affected for an indefinite time, by artificial and unprecedented government policies intended, not only to increase employment and otherwise afford immediate relief from the effects of the depression, but to accomplish revolutionary changes in business, and especially in the distribution of the national income between different classes of the people. As no intelligent forecast of general business can disregard the influence that is likely to be exerted upon it by these new government policies, and as the future traffic and earnings of the railways will depend mainly upon developments in general business, these new government policies must be reckoned with in any attempt to make a railway forecast.

There is another factor of importance which must be weighed in considering prospective business for some years to come. The present depression is the first in forty years, and perhaps the first since that of the seventies, which has been so long and profound that it has caused the accumulation of a vast amount of deferred maintenance and obsolescence throughout American industry. Assuming that new government policies will not seriously interfere with it, progress in old industries and in the development of new industries will be resumed after this depression as it has been after every past depression. In addition the deferred maintenance and obsolescence that have accumulated during the present depression will have to be remedied in order to make the plant of industry, and housing and other living conditions of the people, as good as they were in 1929. Do or do not these facts indicate that, if private capital, initiative and enterprise are given a chance, there will be during the next decade an increase in the volume of production and commerce, and in consequence in railway traffic, especially freight, that will be comparable with the increases that occurred during past decades of prosperity?

The Railways in 1933

While some improvements in the railway situation occurred in 1933, it has gone down into history, as articles published elsewhere in this issue show, as one of the worst years through which the railways and

the industries that are dependent upon them for business ever passed. There was a small increase in freight traffic and earnings, but this was more than offset by a decline in passenger earnings, and gross earnings were the smallest since 1915. Passenger earnings were the smallest since 1900, although they actually increased during the last five months of the year. Operating expenses were the smallest since 1915, being reduced more than gross earnings, and this reduction, together with a decline in taxes, resulted in an increase in net operating income from $334,000,000 in 1932 to about $471,000,000 in 1933. The net operating income earned in the second half of the year was very disappointing, for if business had continued relatively as good as it was last summer, the net earned during the second half of the year would have shown a very much larger increase. The reduction in operating expenses was secured largely at the expense of maintenance, total expenditures for maintenance of about $920,000,000 being the smallest since 1912, and $1,075,000,000, or 51 per cent, less than they averaged annually in the five years ending with 1929.

Considering the conditions, it is not surprising that railway construction made a new low record and railroad abandonments a new high record. The new mileage built amounted to only 24 miles, as compared with 163 miles in 1932, the previous low record, and the mileage abandoned was 1876, as compared with 1626 miles in 1921, the previous high record. In the years 1932 and 1933 the mileage abandoned exceeded the mileage built by more than 3000 miles, with the result that at the end of 1933 the country had the smallest railroad mileage since 1911, and almost 9,000 miles less than in 1916.

Equipment Orders and Bankruptcies

The number of locomotives ordered was 42, as compared with 12 in 1932, the number of freight cars ordered 1685, as compared with 1968 in 1932, and the number of passenger cars ordered 6, as compared with 39 in 1932. Excepting for locomotives, the orders for equipment set new low records. As compared with the average orders placed annually in the five years ending with 1929, the orders placed for locomotives in 1933 showed a decline of 97 per cent, for freight cars 98 per cent and for passenger cars 99.7 per cent. The industry devoted to making equipment for railroads probably has been the hardest hit by the depression of all American industries.

In spite of the unprecedentedly drastic retrenchments made in operating expenses, eighteen railway companies with a total mileage of 21,222 were placed in the hands of receivers or trustees (the latter under the new federal bankruptcy act) in 1933, or approximately twice the mileage which fell into similar difficulties in the preceding year. At the end of the year the total route mileage of railways being operated by receivers or trustees was 44,334, which may be compared with 40,819 in 1894—the highest mileage previously reached of roads in serious financial difficulties. At the end of 1929 only 5,703 miles of line were in the hands of the courts, only two of the companies involved operating more than 1,000 miles of line, the remainder being small properties. In 1933, by contrast, there were ten lines of greater than 1,000 miles included, among them several major systems. As startling as the 1933 total is, it becomes even more so when it is remembered that the intervention of the federal government, by extending its credit through the Reconstruction Finance Corporation, alone prevented railroad bankruptcies from assuming the proportions of a general debacle.

Improved Prospects of 1934

The record of 1934 can hardly fail to be much more favorable for both the railways and the industries dependent upon them for a market than was that of 1933. The upturn in car loadings since their declining tendency stopped in October has been accelerating, and in the first two weeks of January loadings were 12 per cent greater than in 1933 and almost as large, as compared with the five-year average of 1925-1929 inclusive, as last July when they were the largest relatively in any month since January, 1932. Most of the railways that were unable by a substantial margin to earn their fixed charges have now passed into bankruptcy, and with the increase in earnings that is occurring the remainder should be able to do the refinancing necessary with such assistance as the government probably will stand willing to give them.

Increased earnings will, in the cases of most railways, undoubtedly cause increased use of earnings for employment and buying. In addition the Public Works Administration has definitely allocated almost $200,000,000 for loans to the railroads to enable them to increase employment and purchases. There have been long delays in actually making these loans because of difficulties that had to be overcome in drawing up contracts which would be satisfactory to both the government and the railways. The contract for the largest loan, that of $77,000,000 to the Pennsylvania, has been signed. Furthermore, the contracts with the New Haven and Lehigh Valley have also been signed. It may reasonably be expected, therefore, that in a short time the loans that have been allotted will actually be made and purchases with the money will be begun. The prospective purchases with government loans that have been definitely announced include 100 electric and 30 steam locomotives, about 23,000 freight cars and 133 passenger cars, and rails and track fastenings to cost $41,000,000. In addition, the loans contemplate substantial expenditures for repairs to a large amount of equipment and for various kinds of improvement and rehabilitation work.

Railways and Government Loans

The amount which it was originally understood was available in the public works fund for "works" loans

to the railways was $400,000,000. The indisposition shown by the railways for some months to seek or even accept such loans, and the subsequent delays in drawing and agreeing upon contracts which would be acceptable not only to the government and the railways but also to manufacturers, as respects their labor conditions, have resulted in the allotments made to the railways being smaller than was originally anticipated. However, there is good reason for believing that the government would gladly increase its "works" loans to the railways, and would secure passage of legislation for that purpose, if the railways would indicate a willingness to accept more money upon somewhat the same terms as those upon which the loans already allotted are to be made.

The extent to which the railways will be willing to increase their capital and maintenance expenditures, both from their earnings and with money borrowed from the government, will be determined principally by the expectations of their managements regarding traffic and earnings. The increase in traffic and earnings that is now occurring is being affected by the same causes that started the improvement in general business before the recovery policies of the present administration were adopted and, also, by these administration policies.

The administration's policies will affect, in the long run, production and commerce and, therefore railway traffic favorably or unfavorably just to the extent to which they stimulate or retard investment, initiative, enterprise and employment in strictly private business, and especially in the durable goods industries, in which depression has been and still is the most profound.

Government "Recovery" Policies Versus Economic Forces

The *Railway Age* was one of the first publications in the country to express a view now generally accepted and expressed by competent students of economics and business—viz., that the so-called "recovery" policies were designed rather to effect an economic and social revolution than to revive private business, and were more likely to hinder than to promote the increase of production, commerce and the national income. There are, however, certain facts with relation to these policies which cannot be disregarded in considering prospective railway traffic and earnings.

First, the government is rapidly increasing its expenditures upon public works and for other purposes to increase employment, and for some time at least these expenditures will tend to increase railway traffic.

Second, the natural economic forces which cause both increases and decreases in production and commerce are very powerful; are working now in this country and throughout the world to revive business, and seem likely to prove strong enough to overcome the retarding influence of economically unsound government policies, if these policies are not made and kept so stringent as to prevent the large increase of profits in private business necessary to enable it to finance its revival.

Third, increased expenditures by the railways, whether made with money derived from their earnings or from government loans, will help not only to put the railways in condition to handle traffic satisfactorily and economically, and thereby to increase their net earnings, but, also, to stimulate revival of the durable goods industries, the revival of which is most essential to the revival of business in general and to the increase of railway traffic and earnings in particular.

Finally, there is reason for believing that high officials of an administration which is still very popular with most classes of the people and, therefore, almost all-powerful, are anxious to have the railways borrow and spend more government money, and are willing to make them more favorable terms than they usually have been able to secure from private investors.

In the circumstances, it would appear to be to the interest of the railways, and, also, of the nation, for them to increase their borrowings from the government to an extent that will enable them to increase their expenditures enough to put their properties in substantially better condition, and to make a real contribution to the revival of the capital goods industries. Up to the present time their borrowings from the Reconstruction Finance Corporation and the allotments for loans to them made by the Public Works Administration amount to only about one-half as much as they borrowed from the government immediately following their return to private operation in 1920.

If there is not going to be a substantial revival of private business in the near future, the difficulties presented to railway managements by an increase in their borrowings from the government will be trifling as compared with the difficulties presented to them by other conditions. On the other hand, if there is to be a substantial and lasting revival of business in the near future, the increase in gross and net earnings that will occur may make it no more difficult for the railways to liquidate a billion dollars of indebtedness to the government in future than it was for them to liquidate an equal indebtedness to it incurred following their return to private operation.

Co-ordinator Eastman's First Report

Hardly second in importance to the railways to the question as to how much their traffic and earnings are going to increase is the question as to the government policies that will be adopted in dealing with them and with their competitors. Excepting President Roosevelt, Joseph B. Eastman, Federal Co-ordinator of Transportation, will exert the greatest influence in determining these policies. Mr. Eastman's first report was made public last week. It dealt with the question, "Is there need for a radical or major change in the organization, conduct, and regulation of the railroad industry which can be accomplished by Federal legislation?" Mr. Eastman's general answer to this question was in

the negative. Three other reports by the co-ordinator will follow, the next of which will deal with federal legislation needed to regulate other transportation agencies and to coordinate properly all means of transport.

Mr. Eastman's first report is sane and practical, showing his characteristic tendency to deal with problems realistically—that is, in accordance with all the actual facts he can assemble and digest. Being temperamentally somewhat socialistically inclined, he seems to persons who are more capitalistically minded to cherish some theories more than important facts warrant, but he does get the facts, and usually draws from them reasonable conclusions. He reiterates the opinion he has often expressed before, that government ownership will be the ultimate "solution" of the railroad problem. At the same time, he rejects it as an immediate solution, both because of the financial difficulties the government would encounter in acquiring the railways now, and because he believes that other means of solving the problem should first be tried.

"Grand Consolidations" Called Undesirable

He rejects "grand consolidations" such as are contemplated by the Prince-Barriger plan, because "the present uneven distribution of competition would be accentuated, with enhanced danger that population and business would tend to concentrate at favored points," and because he estimates the economies effected would be less than one-third of those claimed for the Prince-Barriger plan. He concludes that while some railways are overcapitalized, the railroads as a whole are not overcapitalized as measured by any reasonable standard, but that owing to the effects of the depression they will be unable for some time to get enough capital from private sources, and that until they become able to do so they should be aided by the government in doing necessary refinancing and in getting the money with which to make needed increases in their expenditures.

"Many of the objectives which are sought in grand consolidation plans, or even in public ownership and operation, can," in his opinion, "be attained through co-ordination, pooling arrangements and a better organization of the industry," and he recommends that the present co-ordinator plan be continued for another year, but that the restrictions upon reductions of labor in the present Emergency Transportation Act be modified, because they go beyond what is reasonable and stand in the way of improvements in operation and service which, in the long run, would be of advantage to labor. He recommends further, however, that "where changes in methods of operation or administration are made, not because of lack of business but for the primary purpose of performing work more efficiently, salvage of the employees should be a charge upon the savings effected, within reasonable limits."

Prospective Federal Legislation

The report of the co-ordinator regarding federal legislation to regulate other transportation agencies and to co-ordinate properly all means of transport will be an interesting, and probably a very important, document. The Interstate Commerce Commission, in its recent annual report, said that it refrained from making any recommendations with respect to further legislation affecting the railroads and other transportation agencies because the duty had been imposed upon the co-ordinator of recommending such legislation as his investigation indicated would be desirable. It is probably not without significance, however, that the commission, of which Mr. Eastman is still a member, said, "The views expressed in our first report in the 15 per cent case to the effect that motor and water competition was comparatively unimportant in the handling of freight and did not loom large in the general railroad situation, and that with recovery in business no general alarm need be felt for the future of the railroads, no longer portrays the situation."

Even more significant, perhaps, are the following statements which appeared elsewhere in the commission's report: "It is obviously not desirable to restrict (transport) competition insofar as it is conducted on a fair basis. However, before such a condition of fair competition can be said to exist, it will be necessary that the various transport agencies pay the same rates of wages for comparable skill, render reliable service on a non-discriminatory basis and bear an equal tax burden."

It does not seem likely that the report of the co-ordinator, dealing with competition between the railways and other transportation agencies, will disclose much difference between his views and those of other members of the commission. It seems reasonable, therefore, to expect that the co-ordinator, the commission and the President will recommend, and that Congress will adopt, although, perhaps, not during the present session, legislation which will go far toward establishing for different classes of carriers the equality of opportunity for which the railways ask.

The Railways and Recovery

Whether recovery from the depression will be rapid or slow will be determined by so many conditions and influences that it is a matter regarding which no real student of economics would hazard any definite prediction. That recovery is now under way, however, there can be no serious question. As the railways serve all industries, the increases in their traffic and gross earnings will be in proportion to the general improvement, while their net earnings will increase more rapidly in proportion to the general improvement than those of most industries. They afford the best means available through which the government can use loans to stimulate revival of the durable goods industries. The prospects of the railroads and of industries dependent upon them for a market seem relatively as good now, therefore, as those of any industries excepting those directly and principally affected by the volume of consumer buying.

A Review of Railway Operations in 1933

Reflects upward turn in business—Outlook good, but will depend on national program

By Dr. Julius H. Parmelee

Director, Bureau of Railway Economics

In its broadest outlines, the year 1933 marked the beginning of a transition period for the steam railway industry of the United States. That period was by no means over at the end of the year, and only a brave man would dare predict how long it will last, or to what extent various changes now in the making will affect the future of transportation. But that there will be changes, and fundamental ones, seems indisputable.

First, the year 1933 brought to the railways, as it did to American industry in general, the first upward turn in business that they had experienced in more than three years of continuous and discouraging declines. This favorable shift in trends did not bring prosperity, but it did check the downward drift, and did offer a basis for renewed hopes for the future. While the industry did not "come out of the red" in 1933, its aggregate net deficit was reduced by one hundred million dollars under 1932, and some indications prevailed that the industry as a whole might return to black figures in 1934. Thus the year 1933 marked the beginning of a transition period that railway men hope will continue, until their industry returns to more nearly normal levels of operating and financial results.

Second, the year 1933 introduced the railway industry, as it did other commercial activities, to the workings of the new relationship between government and industry that is being established under the generic term of NRA. In applying the general program, the government singled out the railway industry for special treatment, represented by the Emergency Railroad Transportation Act, 1933. While this applied special measures to the railways, as distinguished from the more general measures incorporated in the NRA program for other industries, yet the broad underlying principles were much the same for both programs: To assist industry back to its feet, and to eliminate wasteful practices to whatever extent they might exist. While the railways were not directly affected by NRA control, they were indirectly affected in many ways. Among other important effects, railway companies found the prices of the materials they buy going up, with no compensating advantage to them in their own rates and fares —their own prices.

In what degree this NRA movement represents a merely transitional period from one phase in our economic life to another, or in what degree it will become a permanent feature of industrial control, remains to be seen. But this much is true—the movement will lead to changes of some sort, and in that light may be regarded as a transition period, for both the railway and other industries.

Third, awakening to the need of a national transportation policy in the United States grew more general in 1933, and will, it is hoped, lead to a more intelligent approach to the problem as a whole, by Congress, by other governmental authorities, and by the general public. If this appraisal of the public attitude be correct, then 1933 marked a transition period in transportation thought, as well as action. Attacks on the problem were made along several fronts: Reports of several joint boards and of the Interstate Commerce Commission, researches by the newly created office of Federal Co-ordinator of Transportation and other government organizations, supplemented by discussions of competition and co-ordination in the transport field, and proposals for new legislation.

The yeast of public thought on transportation matters is working, and it may not be too much to hope that 1934 will show tangible results of the leavening process.

Our review of railway operations in 1933 will deal, in a necessarily sketchy way, with some of the outstanding developments of that year, devoting more space than usual to a textual discussion and analysis of those developments, and less space than usual to the purely statistical features of railway operation in 1933.

Railway Finances in General

The carriers in 1933 improved their financial situation, in that their operating revenues remained practically stationary, their net operating income increased, and their net income available for fixed charges fell short of meeting those fixed charges by only a small margin, as contrasted with a shortage of nearly 140 million dollars in 1932.

Their financial position also received assistance from governmental sources, from their own loan pool (Railroad Credit Corporation), and from the workings of a liberalized bankruptcy act.

The Reconstruction Finance Corporation, governmentally owned and financed, continued to make loans to railways in 1933, but to a much smaller extent than in 1932. Organized at the beginning of 1932, that Corporation among other things was authorized to aid in the temporary financing of railway companies, after specific approval of applications for loans had been granted by the Interstate Commerce Commission, and after adequate collateral security for such loans had been provided by the applicants.

The Corporation in 1932 authorized 104 loans to railway companies, on which $280,000,000 was outstanding in actual loans at the close of that year. By the end of 1933, the number of loans had increased to 125, and the amount outstanding (exclusive of cancellations and repayments) had increased to $337,000,000. The net increase in outstanding loans during 1933 was only $57,000,000, compared with $280,000,000 in 1932. The rate of interest charged by the Corporation on these loans, which had previously ranged from 5½ to 6 per

cent per year, was generally reduced to 5 per cent on July 1, 1933, and was again reduced (except as to companies in receivership or under trusteeship) to 4 per cent on November 1.

The Railroad Credit Corporation was organized by the railways themselves in 1932, to pool the receipts from the temporary freight rate increases authorized by the Interstate Commerce Commission at the end of 1931, and to operate the pool as a loan fund. By the close of 1932, $46,932,000 was outstanding on such loans. Under the terms of organization of the corporation, the lending period ceased on May 31, 1933, as the rate increases themselves expired by limitation. During the first five months of 1933, additional loans to carriers (less repayments) amounted to $25,447,000, bringing the outstanding loans as of May 31 to $72,379,000. Some of these loans have been curtailed since May 31, so that the amount outstanding at the end of 1933 was $67,344,500. In the meantime, the Corporation has been liquidating its assets, and from time to time is returning to the original contributors their payments into the fund. Ten per cent of the total was so returned between June 1 and December 31, 1933.

This voluntary essay by the railways into the field of co-operative self-help is so significant an example of solidarity and mutual dependence that the comment of the Interstate Commerce Commission on the movement deserves repetition here. The Commission has stated that when it approved of this fund-pooling agreement among the carriers, it relied upon their willingness and ability to carry out the plan, and that its reliance had proved justified. The Commission added (Annual Report, 1933):

"The lending period included the lowest levels of the current depression. It was fortunate, therefore, that the co-operative measures, consummated in the flexible loaning provisions of the plan, permitted extension of aid when no other source was available to the needy carriers. The low interest rates, being equivalent to the rediscount rate of the Federal Reserve Bank in the New York district, were also a great benefit to carriers forced to call upon the Corporation for assistance.

"The Corporation is not subject to our supervision or regulation, but we have enjoyed its full co-operation."

The rates of interest charged by the Railroad Credit Corporation on its loans in 1933 ranged from 3½ per cent down to 2 per cent, and stood at 2 per cent at the close of the year.

Later in 1933, the government set up its Public Works Administration, which among other things allotted loans to railways for improvement work, purchase of equipment and steel rails, and for other similar purposes. The principal design of these loans was to create employment, especially in the so-called heavy industries. To the end of 1933, the PWA had approved more than $200,000,000 in loans of this character to railway companies. Because approval of the Interstate Commerce Commission had not yet been secured, or because other details of the contracts had not been fully settled, no actual disbursements were made on these loans in 1933, the beneficial effect of which will not be realized until this year.

A collateral development in 1933, which indirectly affected railway corporations that might be facing financial difficulties, was the enactment by Congress of the Bankruptcy Act of 1933. This act, signed by President Hoover the day before he left the White House in March, was designed to establish a uniform system of bankruptcy throughout the United States, to set up a plan for the reorganization of railroads, to provide a means for readjusting the debts of individuals, and to authorize appointment of conciliation commissioners to look after the affairs of the farmers in a court of bankruptcy.

With regard to the railway section of the act, financial reorganization under the supervision of the Interstate Commerce Commission without receivership is provided for companies that are insolvent or unable to meet their indebtedness. This is done under a form of trusteeship. Such reorganization contemplates eventual reduction of capitalization and fixed charges, must be approved by the Commission, and under certain conditions by two-thirds of the stockholders and two-thirds of the creditors. After acceptance of the plan of reorganization by the courts, the Commission may proceed to authorize the issue of securities, assumption of obligations, transfer of property, or consolidation or merger of properties, to the extent contemplated by the plan and consistent with its general purposes.

Thirteen railways of Class I, operating 24,966 miles of line, made application during the year 1933 for reorganization under the provisions of the Bankruptcy Act, 1933. The number of railways of Class I in receivership, or having filed application for reorganization, at the end of year 1933 totaled 26, operating 40,329 miles of line.

Another collateral development, of financial benefit to the carriers, was the extension, by voluntary agreement between the companies and the principal labor organizations, of the ten per cent deduction from employee pay checks. The original agreement was for a period of one year and went into effect on February 1, 1932. In December, 1932, this agreement was extended to October 31, 1933, with the understanding that further negotiations could not be initiated prior to June 15, 1933. In line with administration policy, the agreement was again extended, in June, 1933, for an additional period of eight months, or to June 30, 1934. Action looking to any change at the end of that period may not be initiated by either side prior to February 15, 1934.

Public Consideration of Transport Policy

The outstanding event of the year 1933, so far as consideration of a national transportation policy is concerned, was the enactment of the Emergency Railroad Transportation Act, 1933, the creation of the office of Federal Co-ordinator of Transportation, and the appointment to that office of Joseph B. Eastman. A brief analysis of these developments will be presented at a later point.

Meanwhile, other activities were under way, designed to throw light on the transport problem as a whole, to approach it from the broad angle of public interest, and to suggest appropriate policies of regulation and co-ordination.

An important event of the year 1933 was the release in February of the report of the National Transportation Committee, created in the autumn of 1932 under the chairmanship of former President Coolidge, with Messrs. Bernard Baruch, Alfred E. Smith, Alexander Legge and Clark Howell. Mr. Coolidge died during the progress of the Committee's work. The report was supplemented by a comprehensive review of "The American Transportation Problem," issued by the Brookings Institution of Washington, which was prepared for the National Transportation Committee by Dr. H. G. Moulton and his staff.

A brief summary of the Committee's conclusions, drawn verbatim from the four principal headings of its report, is as follows:

1—The railroad system must be preserved. Changed conditions require new policies but not abandonment of railroad regulation.

2—The policy of trying to appraise railroad properties on

some selected basis of valuation and then saying that they are entitled to earn a fair return on this appraisal should be reconsidered.

3—The railroads should do much that they have not done to improve their condition without any government help at all.

4—Regulatory jurisdiction should be extended to the whole national transportation system but applied only to the extent necessary for public protection.

Then followed some emergency recommendations, which have now partly been met in the 1933 act.

Six representatives of the railways and six representatives of the highway users, with Professor W. J. Cunningham of Harvard as their executive secretary, sat down together in conference in 1932, to consider controversial points on highway taxation, regulation, etc., and to attempt joint agreement on principles, so far as possible.

The report of this Joint Committee of Railroads and Highway Users appeared in January, 1933, and was an important contribution to many of the questions involved.

On some subjects the two groups constituting the committee agreed, and on some they wholly or partially disagreed. But the committee did agree on the general principle that there should be regulation of highway traffic, and that in general the highway user should pay for the cost of constructing and maintaining highways for his benefit.

The results of two referenda on transportation, taken by the Chamber of Commerce of the U. S. A., were announced in 1933. The first, Referendum 62, was announced in January. It approved a new rule of rate making, reasonable regulation, and proper bases of competition with other agencies of transport. The second, Referendum 65, was announced in November, and dealt with competing forms of transportation. The Chamber approved of regulation of water and highway carriers, user taxes for commercial motor vehicles, and reasonable limitation of hours of service of commercial vehicle operators. It did not approve a proposal that each state should put into effect certain standards of size, weight and speed of vehicles recommended by the American Association of State Highway Officials.

The Railway Business Association sponsored a series of conferences in 1933, known as the Transportation Conference of 1933, and composed of representatives of bankers, manufacturers, dealer organizations, newspaper publishers, railways and other forms of transportation, and regulatory bodies, in an effort to develop principles underlying a broad transportation policy. The work of this conference was still under way at the close of the year.

The Interstate Commerce Commission's annual reports to Congress usually carry many recommendations, dealing with general transportation policies and with specific legislative changes. The report for 1933 refrained from offering suggestions, with perhaps one notable exception, because the whole subject of transportation was then under survey by the Federal Co-ordinator of Transportation. The exception was the Commission's suggestion of sinking funds for railway debt retirement in the future.

Attention is drawn in the report to the growing tendency of railway bonded debt to increase, exemplified by the growth of such debt from $9,773,239,469 in 1919 to $11,835,523,146 in 1932, or 22 per cent, with an interest charge on the latter date of about $550,000,000 annually.

As no provision is generally made for ultimate liquidation of indebtedness, the Commission made the tentative suggestion that sinking funds be established for the purpose. It cited the possibilities by pointing out that a sinking fund of one-half of one per cent per year, on an accumulative basis, would retire the present debt within a period of 52 years.

President Roosevelt later expressed himself in favor of the suggestion.

Emergency Railroad Transportation Act, 1933

Railways have for so long been under government regulation that they were not classed with the other industries of the country when the Administration determined to build up co-operation in every line between the government and industry, and did so by the passage of the National Industrial Recovery Act, the Agricultural Adjustment Act, and other related measures. Working hours, wages and competition were covered by codes for each industry, agencies for enforcement were established, and the whole country (producers, workers, and consumers) was regimented into one great camp under the aegis of the Blue Eagle and the NRA.

Different treatment was prescribed for the railways. Co-ordination was to be the wand to lift them from the slough of despond into which 1930, 1931 and 1932 had sunk them. The Emergency Railroad Transportation Act, 1933, which was approved June 16, created the office of Federal Co-ordinator of Transportation, prescribed certain limitations on wage changes and reduction in number of employees growing out of actions of the Co-ordinator or under the law, and directed the Co-ordinator to prepare a series of recommendations as to our transportation policy. The expenses of administering the act are met by the railways, on a mileage basis.

Joseph B. Eastman of the Interstate Commerce Commission was appointed Federal Co-ordinator. The railways themselves, under the provisions of the act, organized co-ordinating committees for the Eastern, Southern and Western areas of the country, to make thorough investigation of railway practices and suggest methods of dealing with current problems.

An important provision of the Emergency Railroad Transportation Act, 1933 was amendment of section 15a of the Interstate Commerce Act, with a revision of the rule of ratemaking, which, reading as follows, removed the provision of a definite rate of return on railway values:

"In the exercise of its power to prescribe just and reasonable rates the Commission shall give due consideration, among other factors, to the effect of rates on the movement of traffic; to the need, in the public interest, of adequate and efficient railway transportation service at the lowest cost consistent with the furnishing of such service; and to the need of revenues sufficient to enable the carriers, under honest, economical, and efficient management, to provide such service."

Another amendment provided that all moneys recoverable under the so-called "recapture clause" of the Transportation Act of 1920, cease to be recoverable or payable, and that the railroad contingent fund established thereunder shall be liquidated and distributed among the carriers which have made payments to the fund.

The Federal Co-ordinator was directed by the act to lay such problems before the Commission as his studies develop, and will eventually couple his findings with suggestions as to legislation effectuating his ideas.

The Federal Co-ordinator with great industry set up a number of divisions dealing with various problems, established a research staff, and elicited information from carriers and others through a number of questionnaires and inquiries. Co-operating railway committees were also set up at his request, to deal with the same problems. The railways are working with him and with the government wholeheartedly, not only for their own interests but also to further economic recovery.

The first of a series of reports by the Federal Co-

ordinator of Transportation was submitted to the Interstate Commerce Commission early in January, 1934, and was by them transmitted to Congress on January 20, without definitive comment.

This report dealt with the following question:

1—Is there need for a radical or major change in the organization, conduct, and regulation of the railroad industry which can be accomplished by federal legislation?

It will be followed by later reports, to deal with the following three general questions:

2—Is there need for federal legislation to regulate other transportation agencies, and to co-ordinate properly all means of transport?

3—Is there need for amendments to federal statutes to improve details of the present system of regulating the railroads?

4—Is there need for further federal legislation to improve railroad labor conditions and relations?

The report of January 20 discusses the importance of railroad credit, now and in the future, and finds that railroads are not in the aggregate overcapitalized.

The Co-ordinator finds the outlook for credit unpromising, nor does he find the situation from the standpoint of management and operation satisfactory, there being no effective centralization of authority over many matters of common railroad interest.

In discussing remedies, the report first considers public ownership and operation, which the Co-ordinator believes would, under proper safeguards, go further than any other remedy to abate the railroad ills. The Co-ordinator does not recommend such action now, chiefly because of the financial state of the country.

Next, a "grand consolidation plan" is considered, that is, consolidation into one system or a small number of systems. This the Co-ordinator does not now recommend, because of practical difficulties involved, and because of the radical nature of such a program.

The alternative proposed is to continue the office of Federal Co-ordinator for another year, and to give rail managements the opportunity to deal collectively and effectively with matters that concern them all.

The report further recommends changing the restrictions upon reduction of labor contained in the Emergency Act, generous extension of government credit to the carriers, and a provision for compulsory consolidations on an experimental basis.

The report contained no specific recommendations for legislation on either railway or other transport agencies, which will be submitted later. It was accompanied by several fact-finding and legal documents, discussing the various problems covered in the report.

Rates and Fares

The temporary freight rate increases on specified commodities, which were authorized by the Interstate Commerce Commission in its decision in Ex Parte 103, the so-called Fifteen Per Cent Case of 1931, became effective early in 1932 and expired by limitation on March 31, 1933. These increases, popularly called "surcharges," were estimated to have added about 2½ per cent to rail freight revenue in 1932. The railways requested authority to continue the increases, which was granted by the Commission (with some modifications) for a further period of six months, or to September 30, 1933, when they were generally cancelled. The receipts from these increases up to March 31 were pooled in the loan fund of the Railroad Credit Corporation; the receipts from April 1 to September 30 were not so pooled.

The Interstate Commerce Commission, on petition of certain shippers' organizations, instituted a general investigation of railway rates and charges (Docket 26000). This was in the spring of 1933, and the railways and other interested parties were accorded hearings.

In its decision (195 I. C. C. 5) the Commission found that the present freight level was not "depressing the volume of traffic or the business of the country as a whole and that general rate reductions would not stimulate the aggregate volume of traffic by railroad." It also found that the "preservation of an adequate railroad transportation machine is more important to the country than lowered freight rates."

Local and even general rate adjustments continued to be made in 1933, for the most part to meet competitive rates by motor vehicle and by water. This subject was comprehensively reported to the Commission, in the rate structure hearings of that year, and received consideration by the Commission in its decision in that case (Docket 26000) and elsewhere. In its annual report for 1933, the Commission said in part:

"Not only have the railroads lost tonnage to trucks and water lines, but they have been forced to reduce thousands of rates in an effort to retain their existing tonnage or to regain some of that already lost."

* * *

"The record contains no definite showing as to the extent to which the general rate level has been reduced by reason of the thousands of reductions made in all parts of the country to meet the competition of other forms of transportation, but the fact that the average ton-mile earning throughout the country in the first three months of 1933, excluding the emergency charges, was 13 per cent lower than in 1923 indicates that such reductions have had a material effect upon the rate level. Thus, the competition of other forms of transportation has resulted both in a material loss of tonnage and in a loss of revenue due to lowered rates."

The passenger fare situation is also in a transition stage. There was no change during 1933 in the basic rate of 3.6 cents per mile for passenger travel. Numerous special fares were introduced during the year, however, either to meet competition of other agencies of transportation or to test the effect on passenger revenues and patronage. Special fares now in effect include excursion fares at ½, 1½ and 2 cents per mile, mileage books at 2.7 cents per mile, week-end fares at one fare plus 25 cents for the round-trip, coach fares at 1, 1½ and 2 cents a mile, special party fares at less than one cent a mile, convention fares, summer and winter tourist and excursion fares, holiday fares and Pullman bargain fares.

The result of these special fares has been to reduce average receipts per passenger-mile from 3.018 cents in 1923 to about 2.000 cents in 1933, or by about one-third. Compared with 1932, the reduction in 1933 was about 10 per cent.

The Commission's comment on this situation, in its annual report for 1933, follows:

"It would seem that with the constant decline for the past 10 years, both in the number of passengers carried and the gross revenue from the passenger business, together with the constant increase by other competitive forms of transportation, the time is near at hand when some aggressive action should be taken by the carriers to determine whether it is possible to regain passenger business, or whether they shall be compelled to give up what at one time was a lucrative part of their business."

Transport Competition

Closely related to the question of rate and fare adjustments by railways is the continued development of competition from other agencies of transportation, particularly the commercial vehicle on the highway. To a lesser extent, water competition is a growing factor, as indicated by the increased traffic handled on the New York state barge canal, and by the government's Inland Waterways Corporation on the Mississippi river. Pipe line and aircraft competition is also growing.

As to the motor vehicle, exact statistics are lacking, but it seems reasonable to believe that the ratio of motor vehicle to rail traffic continues to grow. The Secretary of Commerce said, in his annual report for 1933:

"The motor truck has continued to grow in importance as a vehicle of transportation for both passengers and freight. Although the most effective use of the motor truck has been found to be on comparative short hauls, the range of its effectiveness was somewhat widened during the past fiscal year."

General emphasis was laid by commentators in 1933 on the necessity for regulating all competitive forms of transportation, and placing them on a relatively even basis in that respect. The unregulated competition of other forms of transport, supported in many cases by large grants of public funds, have continued to withdraw from the railways growing amounts of traffic and the accruing revenues therefrom. The huge mass of unemployed workers has given the organized proponents of government aid for waterways and highways the excuse that grants of public funds would give employment to large numbers of men and add to the purchasing power of the country with its concomitant beneficial effects on business in general.

The laudable purpose of relieving widespread unemployment has a sentimental appeal that obliterates, for the time, any consideration of the ultimate economic effects of such a policy and leaves to the future the adjustment of the difficulties of uneconomic development of transport agencies with insignificant traffic and a continuing drain of public funds for upkeep.

The National Transportation Committee, the Chamber of Commerce Referendum, the Joint Committee of Railroads and Highway Users, and others, all agreed that regulation of motor vehicle and other transport operations is needed, although there was not complete agreement on the extent to which such regulation should go. The Interstate Commerce Commission has for several years recommended federal regulation of common carriers of passengers by motor vehicle, and the beginning of regulation of motor carriers of freight. This subject is also under careful suvey by the Federal Coordinator of Transportation. In its annual report for 1933, the Commission said:

"The railroads find it very difficult, almost impossible in many cases, effectively to meet the competition of trucks, particularly contract trucks, because with certain exceptions the truck rates are not filed with any governmental agency and the trucks are free to quote any rate that will obtain the business."

Although Congress for several sessions has considered bills designed to regulate motor carriers by bus or truck, no regulatory act has yet been passed. A bill, drafted by the state regulatory commissions and approved (with slight exceptions) by the railways and other parties at interest, was introduced in Congress in January, 1934, with better prospects of enactment than in previous sessions.

It is interesting to note the growth of public acceptance of the idea that regulation should be applied to all forms of transport activity, so that they may compete with each other on a basis of "fair field and no favor." The railways have called this the principle of Equality of Opportunity. Dr. H. G. Moulton, in an address before the American Economic Association in December, 1933, described the same principle as Economic Parity or Equality. Professor W. J. Cunningham utilized the idea in an address at the same meeting, but termed it a True Economic Basis. He added: "Public policy toward each agency shall be equally fair. One agency should not be burdened by regulation and taxation relatively heavier than that imposed upon another."

With differences in language, the underlying principle is the same, that there can be no solution of our transportation problem until and unless all forms of transportation are placed on an equivalent basis of state and national regulation.

Efficiency and Economy of Operation

In view of the abnormal and subnormal conditions prevailing in the railway industry in 1932 and 1933, the usual indices of railway efficiency are of less significance than in more nearly normal times. They will not be presented in this review, although some of the individual factors will be analyzed in later sections.

The general subject of efficiency and economy of rail operation received much consideration during the year 1933, especially as that subject constituted a large part of the research work of the Federal Co-ordinator of Transportation.

The Interstate Commerce Commission, in its annual report to Congress for 1932, listed as one of three important features of railway operations during that year the fact that "the railroads have been in general surprisingly successful in reducing their operating expenses in a ratio reasonably close to the reduction in operating revenues." In its 1933 report, the Commission again commented on this feature, as follows: "The drastic curtailment of operating expenses made in 1931 and 1932, almost in proportion to revenues, was continued in 1933, with the result that a relatively large recovery in net earnings has appeared in recent months."

Compared with 1929, railway operating revenues were about one billion dollars less in 1930, more than two billion dollars less in 1931, and more than three billion dollars less in each of the years 1932 and 1933. During the past four years, therefore, the cumulative decline in railway operating revenues approximated nine and one-half billion dollars. This is more than twice as great an amount as the total operating expenses of the carriers in 1929. Necessarily, drastic reductions in operating expenses were required. During the four-year period, operating expenses were reduced a total of six billion two hundred million dollars, or approximately two-thirds of the aggregate loss in revenues.

In making this reduction in operating costs, which averaged more than one and one-half billion dollars annually, the carriers maintained throughout the period much the same high level of operating efficiency that characterized their performance during earlier years. Efficiency factors involving average speed of trains and fuel consumption per unit of traffic were actually bettered during the period. Factors involving average load generally declined, not because of drastic measures of economy instituted, but simply because traffic in sufficient quantity was not available to permit heavy loading.

Principal Operating Factors

We turn now to a brief review of the statistical results of railway operation in 1933. These are first summarized, and are followed by a somewhat more detailed analysis.

1. Freight traffic in 1933 increased 6.5 per cent above 1932, when measured in ton-miles, and 2.8 per cent when measured in carloadings. Passenger traffic declined 4.5 per cent.

2. Operating revenues decreased 0.8 per cent under 1932, while operating expenses were reduced by 6.2 per cent.

3. The operating ratio averaged 72.7 per cent in 1933, lower than the operating ratio of 76.9 per cent in 1932.

4. Net railway operating income aggregated $470,000,000 in 1933, an increase of $144,000,000 over 1932.

5. Rate of return on property investment in 1933 was

1.80 per cent, compared with 1.25 per cent in 1932, and 4.84 per cent in 1929.

6. There was a net deficit after fixed charges in 1933, but this was less by more than $100,000,000 than the $139,000,000 of net deficit suffered in 1932.

7. Freight train speed, gross ton-miles per freight train-hour, and net ton-miles per freight train-hour, all reached new high records during the year 1933.

Traffic

Succeeding tables apply to railways of Class I, excluding switching and terminal companies throughout. Some of the statistics are estimates, and are subject to revision after final returns for the year 1933 have been compiled.

Table I summarizes railway traffic in the years 1930 to 1933, compared with the five-year average, 1925 to 1929.

Table I—Comparative Traffic Statistics

Revenue Carloadings	
1933	28,961,000
1932	28,180,000
1931	37,151,000
1930	45,717,000
Five-year average, 1925-29	52,075,000
Revenue Ton-Miles	
1933	249,200,000,000
1932	233,977,000,000
1931	309,225,000,000
1930	383,450,000,000
Five-year average, 1925-29	433,307,000,000
Revenue Passenger-Miles	
1933	16,200,000,000
1932	16,971,000,000
1931	21,894,000,000
1930	26,815,000,000
Five-year average, 1925-29	33,551,000,000

Carloadings in 1933 increased 2.8 per cent over 1932, but were 44.4 per cent below the five-year average. Revenue ton-miles increased 6.5 per cent over 1932, but fell 42.5 per cent below the five-year average. Passenger-miles in 1933 were 4.5 per cent below 1932, and 51.7 per cent below the five-year average.

Freight Traffic

Freight loadings in 1933 aggregated 28,960,910 cars. The peak was reached in the week ending September 2, when 666,652 cars were loaded. Revenue ton-miles amounted to 249,200,000,000 ton-miles. Ton-miles increased 7.4 per cent over 1932 in the Eastern District, 6.8 per cent in the Southern Region, and 4.7 per cent in the Western District.

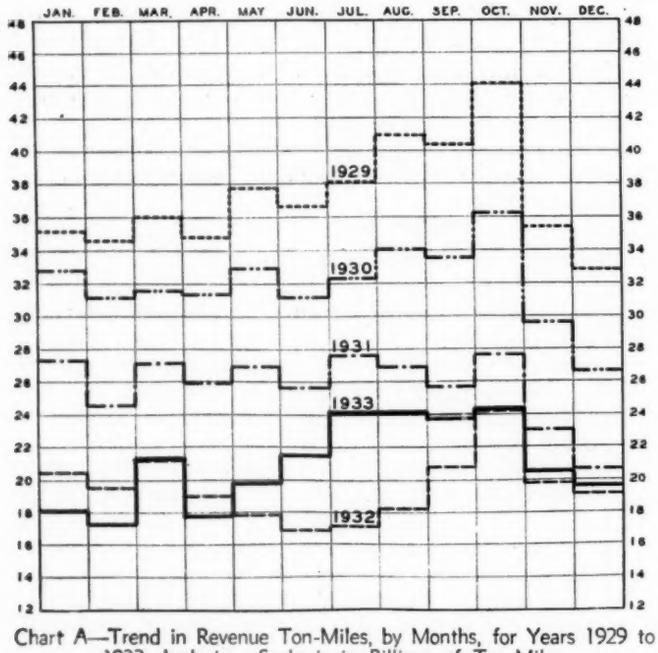


Chart A—Trend in Revenue Ton-Miles, by Months, for Years 1929 to 1933, Inclusive—Scale is in Billions of Ton-Miles.

Chart A shows the trend in revenue ton-miles, by months, for the years 1929 to 1933. The chart emphasizes the spurt in freight traffic from July to September, with relative slackening in the later months of the year.

Chart B outlines the comparative trend in carloadings during the years 1929 to 1933, the percentages being the decrease of each successive three-month period under the corresponding average period of the five years from 1925 to 1929.

The curve on the chart ran generally upward to July, 1929, then generally downward to the middle of 1932. In July of that year, the curve was 51.7 per cent below the five-year average. The curve turned upward in August, but declined in the first quarter of 1933. Then followed another upward movement, which continued through August, when the curve stood 40.8 per cent below the five-year average. A slight downward movement occurred during the remainder of 1933.

Loadings by Commodity Groups

Table II distributes the carloadings of 1933 among the eight principal commodity groups. The second column gives the percentage increase or decrease of each group from 1932 to 1933.

Table II—Distribution of Carloadings

	Number (000)	Per cent increase, 1933 over 1932	Per cent distribution 1933	Per cent distribution 1932
Grain and products	1,654	0.1	5.7	5.9
Live stock	886	6.7*	3.1	3.3
Coal	5,616	5.2	19.4	18.9
Coke	296	32.1	1.0	0.8
Forest products	1,086	20.7	3.7	3.2
Ore	700	232.9	2.4	0.8
Merchandise, L.C.L.	8,428	7.1*	29.1	32.2
Miscellaneous	10,295	4.7	35.6	34.9
Total	28,961	2.8	100.0	100.0

* Decrease.

Six of the eight commodity groups increased in 1933, the percentage of increase ranging from 233 per cent for ore (the smallest group) down to 0.1 per cent for grain. Live stock and merchandise L.C.L. both showed declines. Coal and ore account for 766,916 cars out of the net increase of 780,958 cars in 1933.

Financial Results in 1933

Table III summarizes the operating income account for the years 1933, 1932 and 1930.

Table III—Income Account

	1933 (millions)	1932 (millions)	1930 (millions)
Total operating revenues	$3,101	$3,127	$5,281
Total operating expenses	2,253	2,403	3,931
Taxes	255	275	349
Net railway operating income	470	326	869
Operating ratio	72.7%	76.9%	74.4%

Total operating revenues amounted to $3,101,000,000 in 1933. The decrease under 1932 was $26,000,000 or 0.8 per cent, while the decline under 1930 was 41.3 per cent.

Operating expenses in 1933 totaled $2,253,000,000. This was a reduction of $150,000,000, or 6.2 per cent, under 1932. The reduction under 1930 was 42.7 per cent.

The operating ratio of 72.7 per cent in 1933 was lower than in both 1932 and 1930.

Net railway operating income amounted to $470,000,000 in 1933. This was an increase of 44.2 per cent over 1932, but was less by 45.9 per cent than in 1930.

As in 1932, the railways in 1933 experienced a net deficit after fixed charges While the exact amount of

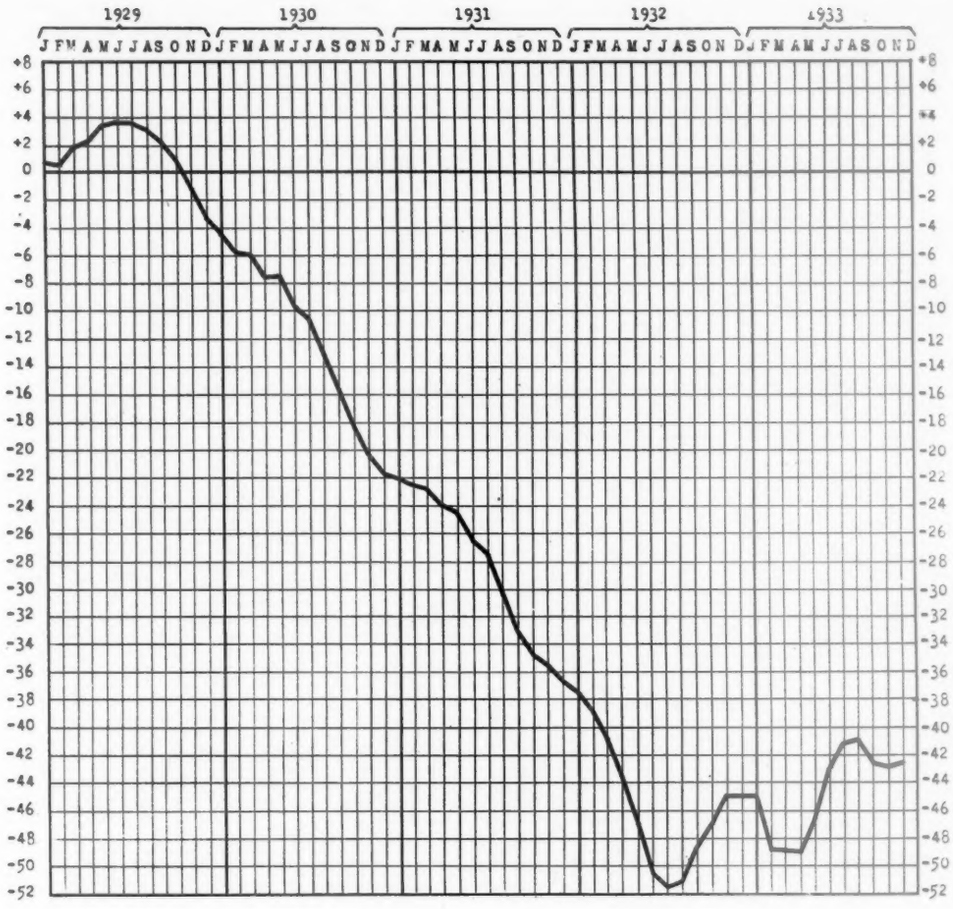


Chart B—Moving Average of Carloadings, 1929-1933, Inclusive—Percent of Increase or Decrease over Corresponding Period of Five-Year Average, 1925 to 1929, Based on Middle Month of Successive Three-Month Period.

the deficit is not known as this review goes to press, it was at least a hundred million less than the $139,000,000 of net deficit in 1932.

Rate of Return

Table IV compares the rate of return on property investment, year by year, from 1923 to 1933.

Table IV—Rate of Return on Property Investment
(Including Materials, Supplies and Cash)

	Per cent		Per cent
1933	1.80	1927	4.30
1932	1.25	1926	4.99
1931	2.00	1925	4.74
1930	3.30	1924	4.23
1929	4.84	1923	4.33
1928	4.65		

The rate of return in 1933 was 1.80 per cent, compared with 1.25 per cent in 1932. Corresponding rates of return for the three districts in 1933 were as follows: Eastern District, 2.3 per cent; Southern Region, 1.8 per cent; Western District, 1.2 per cent.

Operating Revenues

Table V compares the principal items of railway revenue in 1933, with 1932 and 1930.

Table V—Operating Revenues

	1933 (millions)	1932 (millions)	1930 (millions)
Freight revenue	$2,493	$2,451	$4,083
Passenger revenue	331	377	730
Mail revenue	92	97	111
Express revenue	46	54	115
All other	139	148	242
Total	$3,101	$3,127	$5,281

Freight revenue increased $42,000,000 from 1932 to 1933, or 1.7 per cent. Passenger revenue declined by $46,000,000, or 12.2 per cent. Mail revenue fell off 5.2 per cent, and express revenue 14.8 per cent.

Railway Operating Expenses

Table VI compares operating expenses of 1933, by principal accounts, with 1932 and 1930.

Table VI—Operating Expenses

	1933 (millions)	1932 (millions)	1930 (millions)
Maintenance of way	$321	$351	$706
Maintenance of equipment	602	619	1,019
Traffic	86	96	128
Transportation	1,079	1,158	1,848
General and other	165	179	230
Total	$2,253	$2,403	$3,931

The largest single account, transportation expenses, was reduced $79,000,000 under 1932, or 6.8 per cent. Maintenance expenses in 1933—way and equipment combined—were reduced by $47,000,000, or 4.8 per cent.

Revenue per Traffic Unit

Freight revenue per ton-mile, and passenger revenue per passenger-mile, have declined almost steadily since

Table VII—Average Revenue per Ton-Mile and Passenger-Mile, 1921-1933

Year	Revenue per ton-mile (cents)	Revenue per passenger-mile (cents)
1933	1.000	2.000
1932	1.046	2.219
1931	1.051	2.513
1930	1.063	2.717
1929	1.076	2.808
1928	1.081	2.850
1927	1.080	2.896
1926	1.081	2.936
1925	1.097	2.938
1924	1.116	2.978
1923	1.116	3.018
1922	1.177	3.027
1921	1.275	3.086

1921. The decline for the twelve-year period was 21.6 per cent in average revenue per ton-mile, and 35.2 per cent in average revenue per passenger-mile.

Table VII gives the complete record for the years 1921 to 1933, inclusive, and shows a considerable decrease in average revenue per ton-mile and per passenger-mile, during even the one year 1933.

Gross Capital Expenditures

Table VIII summarizes the gross capital expenditures of railways of Class I, for each year from 1923 to 1933.

Capital expenditures for 1933 probably aggregated about $100,000,000. This is used as a provisional figure, until exact reports can be received and tabulated.

Table VIII—Gross Capital Expenditures

1933	$100,000,000
1932	167,194,000
1931	361,912,000
1930	872,608,000
1929	853,721,000
1928	676,665,000
1927	771,552,000
1926	885,086,000
1925	748,191,000
1924	874,744,000
1923	1,059,149,000
Total—eleven years	$7,370,822,000

Railway Equipment

Only one new locomotive and less than 2,000 freight cars were placed in service during 1933. The number of units on order at the close of the year were also much below normal. This is indicated in Table IX.

Table IX—Equipment Installations

	Installed during year	On order Dec. 31
Locomotives:		
1933	1	1
1932	37	3
1931	124	39
1930	782	120
Freight cars:		
1933	1,877	224
1932	2,968	2,431
1931	12,662	4,042
1930	76,909	9,821
Passenger cars:		
1933 (September 30)	98	3
1932	205	15
1931	528	15
1930	1,702	264

Stored serviceable locomotives averaged 7,408 in 1933, as against 10,659 locomotives in 1932.

The daily freight car surplus averaged 515,772 serviceable cars in 1933, compared with 611,953 for the year 1932. These figures do not include privately owned or special service cars.

Locomotives in good order averaged 73.8 per cent in 1932, and 68.5 per cent during the first 11 months of 1933. Serviceable freight cars averaged 89.4 per cent in 1932, and 85.9 per cent during the first 11 months of 1933.

Freight Train and Car Movement

The average speed of freight trains between terminals has increased progressively since 1923. This average reached a new high record in 1933, as indicated in Table X. The increase from 1923 to 1933 was 44.0 per cent.

Table X—Average Speed of Freight Trains

	(miles per hour)
1933 (11 months)	15.7
1932	15.5
1931	14.8
1930	13.8
1929	13.2
1928	12.9
1927	12.3
1926	11.9
1925	11.8
1924	11.5
1923	10.9

Average movement per "active" (i.e., not surplus) freight car per day during the first 11 months of 1933 was 28.3 miles, compared with 28.8 miles for the year 1932.

As average freight train speed during 1933 was 15.7 miles per hour, or 376.8 miles per day, any freight car in movement for a continuous period of 24 hours also averaged 376.8 miles.

Average movement per "active" (i. e., not stored) freight locomotive was 54.1 miles per day during the first 11 months of 1933, compared with 55.8 miles for the year 1932. The corresponding average for "active" passenger locomotives was 107.0 miles per day during the first 11 months of 1933, and 113.5 miles for the year 1932.

Other Performance Averages

Both the average freight train load and car load increased in 1933. The average train load was 701 tons during the first 11 months of 1933, compared with 663 tons for the year 1932. The average car load, or tons per loaded freight car, for the first 11 months of 1933 was 25.6 tons, compared with 24.9 tons per car for the year 1932.

Net ton-miles per freight car per day in 1933 also increased. The daily average was 332 ton-miles for the first 11 months of 1933, compared with 300 ton-miles for the year 1932.

Gross and net ton-miles per train-hour during the first 11 months of 1933, compared with the year 1932 and 1931, were as follows:

	Gross	Net
1933	27,428	10,997
1932	26,064	10,272
1931	26,721	10,825

Both of these factors broke all previous records in 1933.

Fuel consumption per 1,000 gross ton-miles in the freight service during the first 11 months of 1933 was 120 pounds, compared with 123 pounds for the year 1932, and 163 pounds in 1922. Fuel consumption per passenger train car mile during the first 11 months of 1933 averaged 15.1 pounds, compared with 14.9 pounds in 1932, and 17.9 pounds in 1922.

Total number of casualties to nontrespassers resulting from railway operation in 1933 (9 months) showed a decline under the corresponding period of 1932. The reduction averaged 3.4 per cent in fatalities and 11.4 per cent in non-fatal injuries.

Total fatalities to nontrespassers at highway grade crossings declined 1.9 per cent under 1932, while non-fatal injuries were fewer by 11.9 per cent.

Railway Employees

The number of men and women on railway payrolls during 1933 averaged 972,000, compared with 1,032,000 in 1932, a decrease of 5.8 per cent. Aggregate compensation to employees fell from $1,513,000,000 in 1932 to $1,401,000,000 in 1933, or 7.4 per cent.

Average employee earnings in 1933 were affected by changes in force and working hours, and by the continuation of the ten per cent deduction from pay checks to June 30, 1934. Annual earnings per employee averaged $1,440 in 1933, compared with $1,466 in 1932. Hourly compensation per employee averaged 63.0 cents in 1933, against 63.6 cents in 1932.

Summary

Many economists hold the view that the low point in the world-wide depression was reached and passed in the summer of 1932. This view finds some support

in the improvement in freight traffic and financial results of railway operation during 1933, although the banking crash early in 1933 supplied a special problem for the United States from which it took months to recover. As the new year opened, general optimism prevailed here and abroad, and the tendency was to look forward and upward to gradual improvement. To whatever extent such improvement actually occurs in 1934, the railway industry will benefit by the resulting increase in traffic and revenues. At the same time the national program designed to raise material prices has already affected and may further affect the cost of railway operation, and the future relationship between revenue and expense may cause concern.

With every phase of railway operation and regulation subject to possible changes in 1934, the year offers infinite opportunity for speculation and conjecture. Like all American citizens at this critical stage in our economic history, railway managements and men can only devote themselves to their daily tasks in the spirit of public service, leaving the unseen future to unfold as it may.

Railroads Concentrate on Traffic Recovery

Reduce rates, improve service and sales methods to recoup losses of passenger and freight business to competitors

By R. A. Doster and John C. Emery,
Associate Editors, Railway Age

THE energies of the railways in 1933 were concentrated upon the task of increasing their freight and passenger business as perhaps they had never been before. Recognition that traffic recovery is currently the railways' greatest problem became more general, and numerous measures were undertaken by the railways to bring about that end. With the same vigor and resourcefulness which in previous years had marked their efforts toward operating economy, they attacked the problem of meeting the competition of other carriers on the highways, the waterways and in the air.

The year 1933 will undoubtedly be remembered in years to come as the year when the railways definitely threw off the habits which had marked their operations during the decades of their monopoly of the transportation business of the country and when, on a broad scale, they vigorously undertook to increase the attractiveness and saleability of their passenger and freight service. Little was done in 1933 which had not been done to some extent before, but the broad scale upon which the traffic development activities of the railways were conducted last year was without precedent, and the determined attitude of the railways toward their competitive problems was in marked contrast with the attitude which had prevailed in previous years. Consequently, 1933 can fairly be said to have marked a turning point in the traffic history of the railways.

Improvements in the service of the railways were general with respect to both passenger and freight traffic. Otherwise, the competitive situation would not have been met, since competition was as keen for many kinds of freight traffic as it was for passenger traffic. Coupled with the improvement in the railways' transportation service was a long list of rate reductions which rendered less expensive the cost of both passenger and freight transportation by rail. Finally, with a greatly improved transportation product and with new low prices in effect, the railways undertook the improvement of their selling

Adoption of Storedoor Collection and Delivery Service for l. c. l. Freight by Several Leading Eastern Railways Was an Outstanding Event of 1933

methods. Both the personal and printed salesmanship of the railways came in for close scrutiny and the beginnings of substantial changes in this department of railroading were made.

Improvements in Passenger Service

Notable improvements were made during 1933 in the passenger facilities and passenger service of the railways. The program of improvement in passenger cars, both sleeping cars and day coaches, was continued, as was the speeding up of numerous train schedules. Both were designed to equal or surpass attractive features of the service rendered by such railway competitors as the private automobile and the motor coach. The most striking improvement in the passenger service of the railways, however, was the more general adoption of air-conditioning equipment for passenger cars. A few railways had pioneered in the use of air-conditioning equipment during the two or three previous years, but 1933 saw the adoption of this equipment on a broader basis.

The Baltimore & Ohio, pioneer in the use of air-conditioning equipment, installed facilities of this sort in a substantially increased number of cars. The Chesapeake & Ohio, encouraged by the success of the air-conditioned "George Washington," applied the equipment completely to its other through passenger trains, winning the distinction of being the first railway to completely air-condition all but its local trains. The Pennsylvania air-conditioned its passenger trains between New York, Philadelphia, Pa., and Washington, D. C., and began a program calling for the air-conditioning of all its through trains by next summer. The New York Central began the work of completely air-conditioning the Twentieth Century Limited and cars in its principal trains. The Seaboard Air Line began the complete air-conditioning of its Orange Blossom Special, its winter express between New York and Florida.

The results of this improvement of railway service, according to all reports, were uniformly good. Definite evidence was afforded that air-conditioned equipment does tend both to increase travel, especially during the summer months, and to attract business from other kinds of carriers. During the summer, the principal problem of the roads operating air-conditioned trains was that of finding enough equipment to handle the available business, rather than that of finding traffic to fill the air-conditioned cars.

High-Speed Trains Ordered

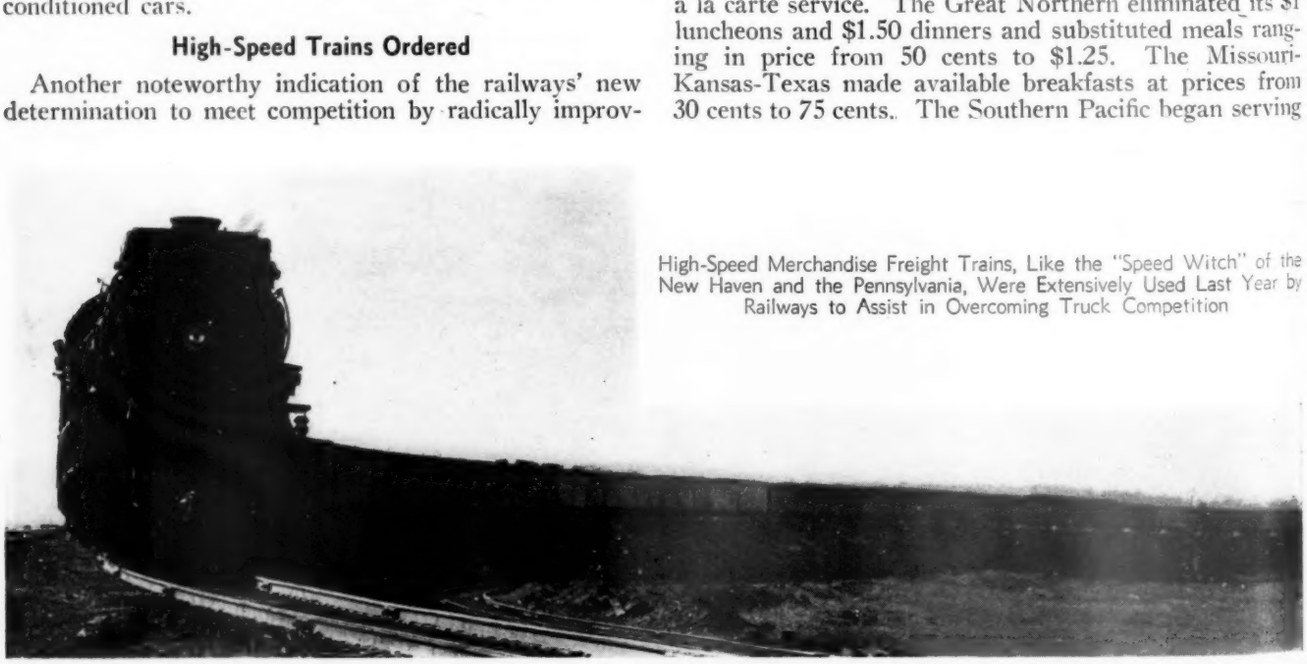
Another noteworthy indication of the railways' new determination to meet competition by radically improving their service was the design and placing of orders for high-speed, completely streamlined passenger trains by the Union Pacific and the Chicago, Burlington & Quincy. These trains constitute a radical departure from many of the characteristics of railway trains which have been standard for years. Designed to operate at speeds in excess of 100 miles per hour, while meeting the requirements of safety, comfort and operating economy, these trains are expected to provide an effective answer to competition from faster carriers on the highways and perhaps even in the air. The publicity which has been accorded them by newspapers and magazines throughout the country has afforded evidence of the reception which these and other trains of similar types should have at the hands of the public. They have been looked forward to by the public as concrete evidence of the determination of the railways to render the kind of passenger transportation service which the public wants.

Besides constructing these high-speed trains, the railways and the Pullman Company modernized much of their equipment. Coaches were fitted with reclining seats and interior decorative effects were changed to harmonize with present-day fancy. An outstanding example is the Northern Pacific, which incorporated several modern appointments in a new train between the Twin Cities and Fargo, N. D., and in another between the Twin Cities and Winnipeg, Man. The Fargonian, as the former train is called, has a lounge coach with upholstered revolving chairs similar to those in parlor cars. The equipment of the Winnipeg train was modernized to include a smoking car, a coach and a dining lounge coach.

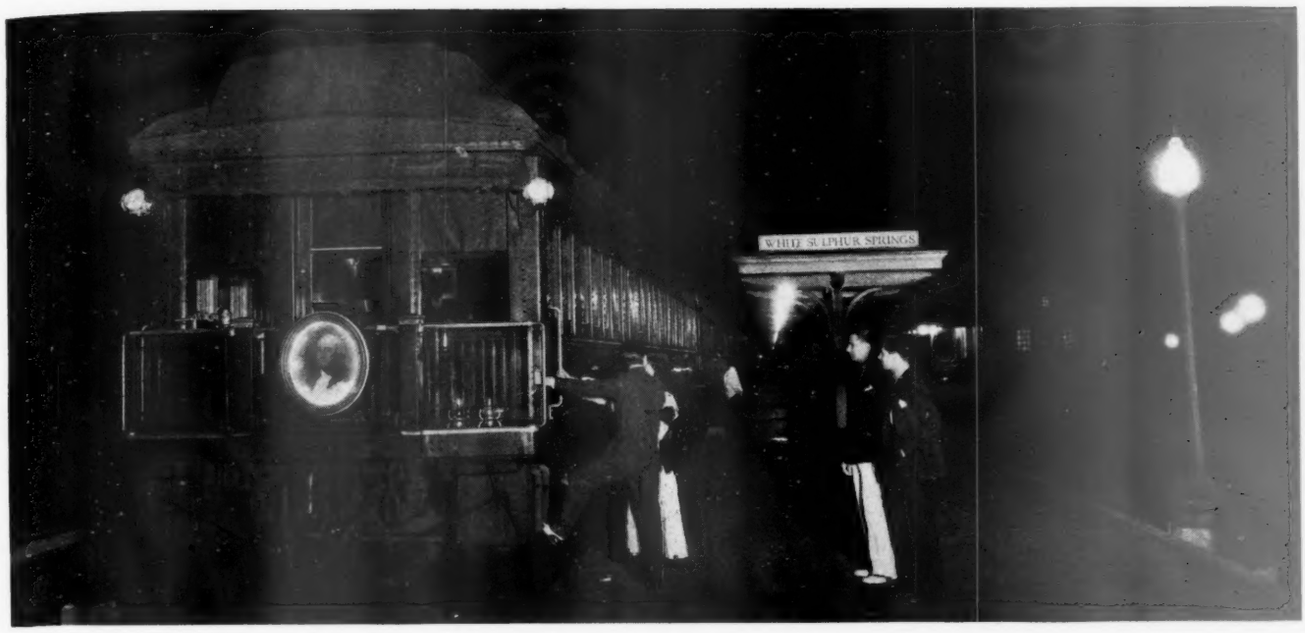
The Pullman Company, in 1933, continued its efforts to increase comfort by constructing new and modernizing existing cars. The outstanding Pullman development was the construction of an all-aluminum air-conditioned compartment observation lounge car exhibited at A Century of Progress Exposition at Chicago.

Dining Car Prices Reduced

Another development in 1933 was the effort of the railways to make their service more attractive by reducing the cost of meals. On the Chicago & North Western "Select-Your-Price" meals at 75 cents to $1.25 were established on all dining cars, to supplement club breakfasts at 50 cents to 90 cents, club luncheons at $1 and a la carte service. The Great Northern eliminated its $1 luncheons and $1.50 dinners and substituted meals ranging in price from 50 cents to $1.25. The Missouri-Kansas-Texas made available breakfasts at prices from 30 cents to 75 cents. The Southern Pacific began serving



High-Speed Merchandise Freight Trains, Like the "Speed Witch" of the New Haven and the Pennsylvania, Were Extensively Used Last Year by Railways to Assist in Overcoming Truck Competition



The "George Washington" of the Chesapeake & Ohio, One of Several Trains which, in 1933, Proved the Traffic-Drawing Power of Complete Air Conditioning

luncheons and dinners for 80 cents to $1.25 and breakfasts for 50 cents to 90 cents. The Ft. Worth & Denver City introduced the lunch-counter car on which it provides a standard lunch-counter service with sandwiches, pastry and coffee, a plate breakfast costing as little as 40 cents, a plate lunch and dinner, 50 cents. This road also offered a table service with a 75-cent breakfast and a 90-cent lunch and dinner in addition to a la carte service.

The outstanding feature of passenger service changes in 1933 was the general reduction in passenger rates. Beginning with the six months' experiment of the Louisville & Nashville, the Nashville, Chattanooga & St. Louis, the Gulf, Mobile & Northern and the New Orleans-Great Northern, on April 1, when these roads reduced the basic rate to two cents a mile in coaches and three cents a mile in Pullman cars, passenger rate reductions, before the year ended, were adopted by all western lines and some southeastern and eastern lines, either over their entire systems or on competitive routes.

Passenger Fares Cut

Following the action taken by the Louisville & Nashville, the Nashville Chattanooga & St. Louis, the Gulf, Mobile & Northern and the New Orleans-Great Northern, the Great Northern and the Northern Pacific, on August 1, reduced their coach and tourist sleeping car rates to two cents. At the same time, the Chicago, Milwaukee, St. Paul & Pacific established a two-cent rate on its main line west of St. Paul, Minn., while the Chicago & North Western and the Union Pacific placed a two-cent rate in effect between competitive points. On October 6, the western lines, including the Illinois Central, the Chicago & Eastern Illinois and the Chicago, Indianapolis & Louisville, decided to reduce the basic rates and eliminate the surcharge, effective December 1, for six months. The new low rates were 3 cents per mile for one-way tickets, 2½ cents per mile for round-trip tickets with a six-month limit and 2 cents per mile for round-trip tickets with a 10-day limit, or for coach tickets.

The Seaboard Air Line and the Atlantic Coast Line also reduced their coach rates to 2 cents a mile. The action of these two roads was followed by an announcement by the Southern that it would reduce its coach rate to 1½ cents a mile. As a result of the action of the western and southeastern lines, a variety of rates were placed in effect on several railroads on December 1. In general, they include the elimination of the surcharge, a 3-cent rate in sleeping cars, a 2½-cent rate on round-trip tickets with a long limit and a 2-cent rate on such tickets with a short limit, and 2-cent and 1½-cent rates in coaches.

Another important development in 1933 was the introduction of party fares and the mileage book. The latter was established on February 1, when railroads affiliated with the Transcontinental and the Western passenger associations offered mileage books at a price which gave a 25 per cent reduction in ordinary fares. The party fares were placed in effect on June 1, 1933, in the West to encourage parties of two or more to use the railways instead of private automobiles and buses to travel to A Century of Progress Exposition at Chicago.

Improvements in Freight Service

Improvements which the railways made in their freight service during 1933 had one basic aim—faster transportation from the shipper to the consignee. To bring about this acceleration, changes were made in railway service, both over the road and in terminals. Faster schedules were inaugurated over the country generally and especially between points 200 or 300 miles apart, or within the zone of concentrated truck competition. Between distributing centers and points within their entire trade area, overnight service, with late acceptance of freight at the shipping point and delivery early the following morning at destination, became the rule of many railways' merchandise freight service in all parts of the country. Duplicating or beating the speed of motor truck competitors was the aim of the railways in establishing this sort of high-speed freight service. Accelerated merchandise freight service, in short, became accepted as one of the essential steps in the program of freight traffic recovery.

Pick-up and Delivery Service Spread

Supporting the high speed over the road afforded by the new fast freight train schedules, storedoor collection

(*Continued on page 125*)

Co-ordinator Eastman's Comprehensive Investigation

Through questionnaires and special studies his organization plans improvements in transportation methods

By H. F. Lane
Washington Editor, Railway Age

CO-ORDINATOR EASTMAN'S first report, transmitted to the President and Congress on January 20, was submitted under the provision of the Emergency Transportation Act, 1933, for the immediate study of conditions surrounding transportation in all its forms, other than those directly proposed in the act, and the preparation of plans therefor. The first report, recommending continuation of the co-ordinator plan for another year without the hampering labor restrictions of the present law, deals solely with the general railroad situation and will be followed shortly by others dealing with regulation of other transportation agencies, possible improvements in the system of federal railroad regulation, and railroad labor legislation. From these, with the advice of the Interstate Commerce Commission, and a special advisory committee on transportation appointed by the President and headed by the Secretary of Commerce, President Roosevelt hopes to develop a new transportation policy providing for the creation of a national transportation system which, in Eastman's words, "will give the railway, the highway, the waterway and the airway, the place in the sun which economically belongs to it."

The first report was general and preliminary in character. Many other phases of the investigation of railroad methods and practices and of those of other forms of transportation are under way and will be made the subject of other reports, including proposed changes which may not require legislative changes to accomplish. Because of restrictions in the present law Mr. Eastman's activities so far have been mainly investigatory. If the changes he now proposes are adopted the organization which he has developed would be expected to assume a more active role.

A complete account of the work of the co-ordinator's organization up to the end of the year, including a discussion of some of its plans for the future, was included in an appendix to the report.

That the path toward greater co-ordination and co-operation is by no means a smooth one became evident even before the emergency act was passed, when the railroad labor organizations succeeded in having it amended in such a way as virtually to nullify for the time being any prospect of the economies to be effected by the elimination of competitive duplications which was originally one of its chief objectives. Another type of obstacle has since been illustrated by the large number of protests that have been stirred up among labor organizations, communities, and railroads by the fact that Eastman was even seriously investigating the Prince plan for effecting economies by reducing the number of competing systems. Moreover, strong opposition continues in many quarters to the idea of even a co-ordination of government regulation of transport under a single authority, and efforts are being made to keep such regulation as there may be on a competitive basis by having it administered by separate code authorities under the jurisdiction of the N. R. A. for truck, bus, and water transportation, while the railroads are left under that of the Interstate Commerce Commission.

For a time Mr. Eastman was popularly known as the "Railroad Czar," because of the seemingly almost unlimited powers conferred on him by the law. However, although authorized and directed to "issue and enforce such orders . . . as he shall find to be in the public interest," he has issued but one order in the seven months since he entered upon the duties of his new office. General Order No. 1 called for a list of the employees on the railroad payrolls in May, 1933, none of whom, according to the law, may "be deprived of employment such as he had during said month of May or be in a worse position with respect to his compensation for such employment, by reason of any action taken pursuant to the authority" of the act.

A "Doctor of Transportation"

Because of this restriction which the labor organizations had inserted in the act, the opportunities for orders have been greatly limited and instead of issuing orders Mr. Eastman and his staff have been engaged in conducting probably the most elaborate and painstaking investigation of transportation ever undertaken. Appointed for the double purpose of eliminating "preventable wastes" in railroad operation under emergency powers for one year, and of preparing plans and recommending legislation for the future, Mr. Eastman has found the widest field for his energies in the second part of his task. Far from attempting to act as a general manager of the railroads he has described himself as a "Doctor of Transportation," saying: "The President and Congress were rather busily engaged in other matters and were not sure as to just what should be done with this transportation situation. So they told the Co-ordinator to make a diagnosis and submit prescriptions which could be considered when Congress convened again."

"On the one hand," he remarked, in his first public address describing his new job, "I was told to effect economies and on the other I was told not to deprive men of work. This converted me, to some considerable extent, from the doer of deeds into a prober of possibilities."

Before the report, the principal output of his office had been questionnaires, because Mr. Eastman, in spite of his long experience on the commission, was not satisfied merely to recommend his own ideas without an additional background of facts. Most of them, of course, were for the purpose of eliciting facts, statistics and ideas. Some of them, however, were for the purpose of

suggesting action. "We hope to obtain certain definite and concrete results," he said, "in large part through these questions, but even if we were to stop short with the asking of them they would serve a very useful purpose. In the very answering of these questions, the railroads are going to think a good deal and learn a good deal."

Questionnaires Galore

One of his questionnaires was addressed to so many people that he could not even mail them copies. Instead, he announced through the press the desire to elicit from interested shipper and trade associations, organizations of transportation agencies, and individuals, such comment, together with pertinent factual data, as they might care to make on any or all of a series of 27 questions as to what changes should be made in our laws. To a considerable extent this amounted to a request for a referendum vote on the comprehensive program presented by the Association of Railway Executives in 1932 to the Coolidge Committee and members of Congress, which has since been supplemented in additional memoranda submitted to the Co-ordinator. Many thousands of answers have been filed, not only by the organizations representing the railroads, shippers, traffic managers, truckers, and others, but also by individuals, and even if many of the latter have given the answers recommended to them by some of these organizations a count of them will give some indication of the trend of opinion. Other questionnaires have been sent to the railroads, to 100,000 shippers and receivers, to 16,000 operators of motor truck fleets, to 1,100 operators of water lines, to state railroad and utility commissioners, and municipal authorities.

According to some railroad executives, the railroads have been almost running themselves recently while their officers have been busy answering Eastman's questions. The Interstate Commerce Commission organization has also furnished a great deal of assistance in connection with the investigation.

Mr. Eastman has also studied carefully the experience of Great Britain, which not only consolidated its railroads into four systems some years ago, but has recently enacted legislation providing for a regulation of highway transportation and its co-ordination with that of the rail lines, while in this country we have been debating about doing so for six or eight years.

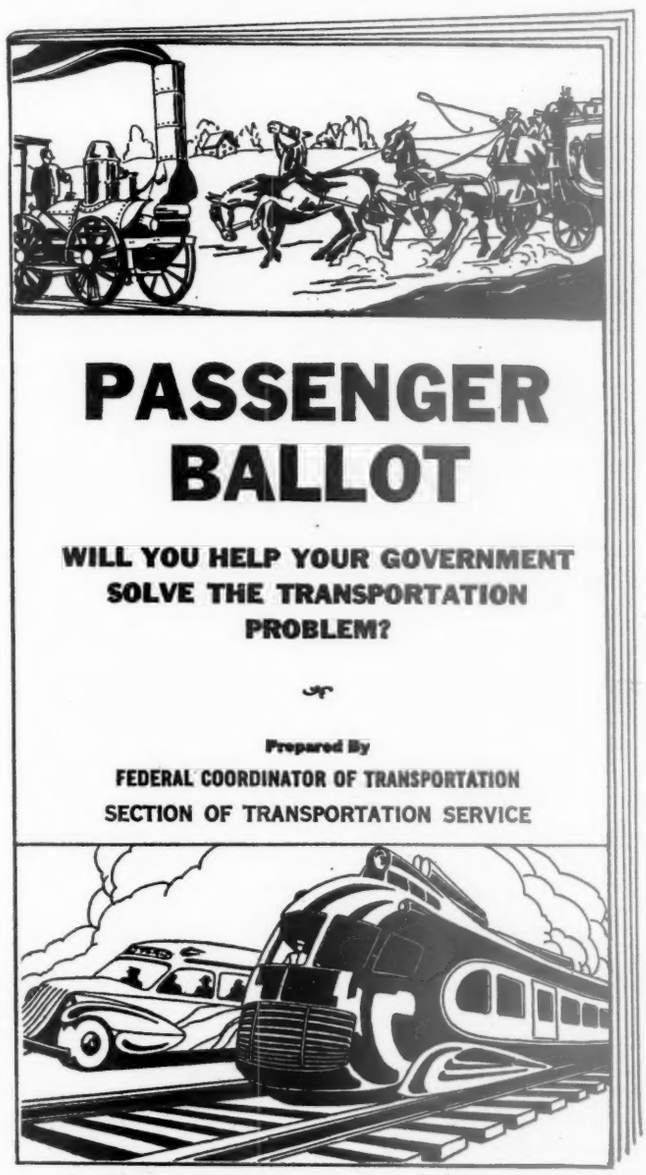
Aside from his investigation many of Mr. Eastman's activities have been rather unofficial and it is understood that he has performed useful service on several occasions by bringing his knowledge of the railroad business to bear for the purpose of tempering some of the theories of the numerous "economic planners" in Washington. In connection with his own inquiries Mr. Eastman has also conducted a thorough investigation of the railroad equipment situation. In July he furnished the President an opinion on which Mr. Roosevelt based his decision that the railroads were not and should not be included under the jurisdiction of the N.R.A.

One of the first steps taken by Mr. Eastman was to request that the railroads reduce the higher salaries of their executive officers to place themselves in a better position before the public. It is said that this was done in part to head off threatened legislation on the subject. At any rate the railroads agreed to reduce salaries to a maximum of $60,000 a year, estimating that they had saved $208,000 a year.

In September he initiated a series of conferences between railroad traffic officers and representatives of water lines in connection with the working out of a plan for promoting stability in rates and discouraging destructive competition by the formation of standing committees to keep each other fully informed of proposed reductions in rates for competitive reasons.

Mr. Eastman and the President together in October succeeded in bringing about an agreement on the part of the steel companies to reduce the basic price of steel rails, as a temporary emergency proposition, from the basic price of $40 a ton to $36.375, this figure having been arrived at by a compromise between a price of $35 urged by Mr. Eastman and a price of $37.75 bid by the steel companies. In his report Mr. Eastman says there can be little doubt that, "but for the public agitation on this matter, the initial price filed under the code would have been higher than $40 per ton. Therefore, the saving accomplished, in all probability, is even greater than the difference between $40 and $36.375."

One of the problems early forced on Eastman's attention was that of the "company unions." The labor organizations had succeeded in getting into the law a somewhat indirect prohibition against the use of railroad funds, influence, or coercion to maintain such organizations, the purpose being to drive the employees into the national organizations, and Mr. Eastman, announcing that it was his duty to enforce the intent of the law,



The Passenger Ballot Was Mailed to a List of 200,000 Selected Travelers

which he interpreted to mean that railroads must "keep their hands off" so far as labor organizations are concerned, instituted an investigation. On December 8 he addressed a communication to the regional committees listing a number of practices which he believed to be prohibited by the law and suggesting action to bring about compliance with its intent without requiring him to act in the matter. On January 4 he held a conference with the Regional Co-ordinating Committees on the subject at which they agreed to make recommendations to the individual roads which Mr. Eastman thought represented marked progress in clearing up the matter.

The Co-ordinator's Organization

The Co-ordinator's organization, in addition to executive and legal assistants, includes five sections, Transportation Service, Car Pooling, Purchases, Labor Relations, and Research. It includes about 100 persons, including clerical force, stenographers, etc. There are three regional directors, H. J. German in New York for the eastern region, C. E. Weaver, in Atlanta for the southern region, and V. V. Boatner in Chicago for the western region, working in close contact and co-operation with the three Regional Co-ordinating Committees and numerous special committees under them. The duty of these committees is to search out ways of eliminating waste and preventable expense, particularly through joint action and co-operation of the railroads with each other. The duty of the regional directors is to promote and check up on this work.

The Regional Co-ordinating Committees have each appointed numerous sub-committees, and to them Mr. Eastman has referred for investigation and report, among other things, all projects within their respective regions which are embraced under the general heads of "Unification of Facilities" and "Unification of Service." Other projects are to be referred to the regional committees as concrete plans are developed which either do not involve reduction in railroad employment or cannot be accomplished without the help of the Co-ordinator.

Only an incomplete report could now be made of possible economies, Mr. Eastman's report says, "but the search has gone far enough to justify the statement that the opportunities in this direction are very substantial. Later in the year definite figures can probably be given."

L.C.L. and C.L. Freight Studies

The Section of Transportation Service, under the direction of J. R. Turney, formerly vice-president of the St. Louis Southwestern, has been working on the problems of the modernization of service to meet changed conditions. Especially it has been working on methods of handling less-than-carload freight, and its merchandise traffic survey, the first to be undertaken, has now been completed. The section next took up a passenger traffic survey, and surveys of carload traffic and railroad selling and pricing methods are next in line. Meanwhile Mr. Turney has been devoting a great deal of attention to the possibility of developing new and lighter types of freight cars.

In connection with the merchandise traffic survey personal letters were sent in August to the presidents of the larger railroads enclosing two questionnaires. One, to be answered on behalf of each railroad or system, sought statistical information as to the volume of the traffic, channels and agencies by which it moves, rates and charges, the proper sphere of each of the several transportation agencies, and any local experiments undertaken by any of the railroads. The other was to be answered personally by railroad officers expressing their strictly individual views. Another questionnaire on this subject was sent to 100,000 shippers, of whom 40,000 answered.

Mr. Eastman has outlined some of the probable opportunities for improvement in the handling of merchandise traffic, which in 1932 required 32 per cent of the loaded cars to handle 2½ per cent of the freight tonnage. These involve greater concentration of the traffic, reduction of transfer and interchange, the use of the truck where it is a better agency than the railroads, the use of cars or other containers well adapted to the characteristics of the traffic, store-door receipt and delivery, and reconstruction of the rate structure on new lines and principles.

The study of carload traffic probably has within it greater possibilities for good than any other which the section will make, in Mr. Eastman's opinion. This will endeavor to measure the volume, origin, and destination of available carload traffic grouped by principal commodities, and the distribution of this traffic among the several transportation agencies. It will investigate the needs of shippers with respect to the kind of equipment, facilities for loading, protection of lading, the speed and completeness of the service, and, within a limited field, the charges which each class of traffic will bear. It will examine the possibility of securing better and more economical service through the adoption of lighter cars and other changes in car design. It will analyze and compare methods, practices, and costs of rendering the service in the case of each agency of transportation from the beginning to the end of the movement. It will attempt to appraise the desirability and cost of store-door collection and delivery of carload traffic and also to determine the extent to which terminals can be motorized.

Passenger Traffic Survey

The passenger traffic study includes the subjects of fares, cost of service, requirements of patrons and the proper sphere of the several passenger carrying agencies. As a first step questionnaires were addressed on October 13 to the presidents of the larger roads, including a "Ticket Office and Agency Inquiry," and a "Passenger Traffic Officer Inquiry" to be answered by railroad officers individually. To a considerable extent this study is an effort to develop what the traveler wants, and on November 28 a "Passenger Ballot" was mailed to a list of 200,000 selected travelers giving them an opportunity to vote on suggestions as to improvements in service and as to what fares would induce them to travel more. Other questionnaires were sent to newspaper and magazine publishers, heads of advertising agencies and sales managers, asking expressions about railroad rates and accommodations, and their advertising and sales methods, in comparison with those of other agencies.

The final study will deal with the selling and pricing organization and efforts of transportation agencies, going thoroughly into the methods of selling railroad service and attracting patrons and business.

The Section of Purchases

The Section of Purchases has been chiefly engaged in accelerating work along the lines on which railroad associations and committees have been engaged in relation to the standardization and reduction in the number of types of equipment and of many kinds of materials and supplies. Later on it will take up other phases of purchasing methods, including a study of the possibility of establishing a central research organization. "No attempt will be made by this section to develop standards itself," R. L. Lockwood, director of the section, says. "Our policy is to work through existing organizations, including the various committees of the American Railway Association and certain organizations in the supply trade."

On October 6 Mr. Eastman sent to the Regional Co-

ordinating Committees a series of recommendations prepared by the Section of Purchases urging action with respect to standardization projects relating to cars, lumber, rails and rail accessories, the adoption of a simplified invoice form and improvement in coal-purchasing methods, including the elimination of the practice of reciprocal buying. The invoice form has since been definitely adopted and recently Mr. Eastman has been urging the committees to expedite action on the final approval of the 50-ton standard box car so that railroads may feel freer to use that design in placing early orders.

A study is also being made of shop equipment now in use by the railroads, to determine the degree of economy which could be secured if the equipment were modernized.

Permanent Government Organization Proposed

The information developed as a result of the work of the Section during the past six months points clearly to the need for a permanent organization under government authority, if existing conditions are to be improved, Mr. Eastman reports. "In no other way does it seem possible to secure tangible results and protect the public interest.

"It has become evident that a large amount of technical work will be essential in connection with standardization and simplification, and with investigating new devices. Judging from past experience, a large proportion of the numerous standardization and simplification projects now under way or proposed will not be made effective if left wholly in the hands of the railroads. If on the other hand an organization such as the Section of Purchases undertakes to promote them, it must first decide as to their merits, both technical and commercial. It can do this in only one of two ways; either by arbitrary decision, based largely on the plurality of opinion in a railroad committee; or by determining through expert and impartial technical work the best standards available for accomplishing a desired performance. The latter is obviously the sound way, though longer, and should be followed in every project in which there is any serious disagreement on technical matters, or in which a decision is reached without adequate study of technical factors. Obviously such technical work should be done by the railroads. The co-ordinator, with his present resources, cannot expect to build up an adequate organization of this character, although it may be that the Section will be able to enlist some help along this line.

"In connection with improvement in purchasing methods, several plans have been studied. The one which now appears to offer the best possibilities for results, and at the same time to avoid unnecessary disturbance of existing conditions, consists in establishing regional boards of review. There would probably have to be seven or eight of such boards, regions being roughly allocated to correspond with present traffic regions. Each board would consist of a small number of purchasing agents of the roads in the region, and would meet at intervals not longer than two months. The board would then review actual purchase orders issued since the preceding review.

"Such review would disclose much important information, including degree of adherence to standards, uneconomical routing, and unwarranted variations in price. It is too early to present details of this plan, but it has been discussed with a number of purchasing experts, and on present information appears practicable."

Study of Car Pooling and Equipment Condition

The Section of Car Pooling, under the direction of O. C. Castle, formerly superintendent of transportation of the Southern Pacific lines in Texas and Louisiana, is working on the old problem of the pooling of railroad equipment, the object being better utilization of cars and reduction in empty-car mileage and repair expense. On October 13 the Co-ordinator sent to the regional committees an analysis of the empty-car movement statistics, calling attention to the large empty-car movement in the same direction as the loaded haul. Stating that pooling is one possible remedy Mr. Eastman asked the carriers' organizations to consider the problem on the theory that they may be able to develop some other practicable remedy. A committee of railroad mechanical and accounting officers was appointed in November to co-operate with the Co-ordinator's organization in its study of freight car pooling by undertaking to formulate rules for the proper maintenance of freight cars under a pool operation. Mr. Eastman said the study is not to be understood as implying any commitment to a pooling plan, but rather as an important step in determining the feasibility and desirability of such a plan.

A comprehensive study of the general freight car situation was started on August 28 when personal letters were addressed by the Co-ordinator to the executives of Class I railroads accompanied by a questionnaire requesting them to make a thorough canvass of existing freight car equipment and submit views as to the repair or retirement of worn-out cars. The primary purpose was to develop facts for use in the consideration of the feasibility of car pooling, but a secondary object, which arose out of the discussion as to whether railroads ought to buy a considerable amount of new equipment, was to direct the attention of railroad executives to the condition of their own freight-car supply, with a view to effecting the retirement of worn-out or obsolete equipment. On November 25 the Co-ordinator sent to the executive officers statements comprising the summarized replies to the questionnaire and commenting on the fact that over 300,000 cars, or 15.4 per cent, are more than 25 years old.

Attention was also directed to the excessive ratio of tare to carrying capacity in cars of older designs and the Co-ordinator expressed the opinion that a revision of repair programs with a view to long-range economy rather than expediency would probably increase the number of retirements and decrease the number of general repairs. The original questionnaire is being supplemented by inquiries directed to those railroads whose reports, when analyzed, indicate conditions which call for a more detailed study of repair programs.

Later a questionnaire was sent out calling for the description, condition and potential capacity of steam locomotives, and data as to the needs of the railroads with respect to the retirement, replacement or modernization of motive power.

Truck and Water Line Surveys

Material for the motor truck survey has been gathered in part through a questionnaire addressed on September 13 to 16,000 operators of motor truck fleets, prepared jointly by the Sections of Research and Transportation Service, seeking the essential data regarding truck operation, the character and extent of the traffic handled, the charges collected, etc. In a somewhat similar water line survey a questionnaire prepared by the Section of Research was sent on September 18 to 1,100 companies operating in intercoastal, coastwise, inland and Great Lakes waterway transportation service, and on October 12 another was sent to 4,000 traffic managers of representative industries and commercial enterprises regarding the uses made of domestic water transportation facilities and their viewpoints as to the respective merits of water and other means of transportation, the possibility of improving water service, the co-ordination of various

transportation agencies and stabilizing and regulating carriage by water. State commissioners have been asked to express their views as to regulation of motor vehicles.

On October 12 a comprehensive study of the wages, hours and working conditions in highway and air transportation was announced to be conducted jointly by Eastman's organization and the Commissioner of Labor Statistics. Agents of the Bureau of Labor Statistics have also been making a personal investigation of wage rates, hours and conditions of work of employees of 200 bus companies and 300 truck companies engaged in intercity business. All this, of course, is to ascertain the extent to which the competition of other carriers with the railroads is fostered by lower labor costs.

As a part of the general study of the question of public subsidies to air and motor transportation other questionnaires have been addressed to municipalities, states and other public bodies owning or operating airports and landing fields, to the Bureau of Public Roads and others, and a study of government aids to water transportation has been conducted through public records.

The Research staff is in charge of the study of matters bearing on the need for further legislation to improve transportation conditions generally. Its work will be described in more detail in the reports which are submitted, through the commission, with respect to further legislation. The Section of Labor Relations, however, which is partially research in character, has duties which go beyond the study of future legislative needs, for it deals with all labor matters requiring the Co-ordinator's attention.

Labor Relations

The Labor Relations Section is making the investigations necessary for recommendations as to a permanent labor policy for the railroads. It is under the direction of O. S. Beyer. In addition to a study of railroad labor conditions, in comparison with those prevailing in highway, waterway and air transportation, this section has recently undertaken a study of the employment and earnings history of approximately 300,000 of the employees of the railroads, from 1924 to 1933, with the purpose of furnishing from the employment records of individual workers on representative railroads a factual basis for estimating the costs of retirement pensions, unemployment insurance, and dismissal pay, for which legislation has been demanded by the railroad labor organizations. This work is to be conducted by 2,012 workers provided and paid by the C. W. A. On October 20 the Co-ordinator announced the appointment of an advisory committee to advise with the Labor Relations Section in its study of labor relations, particularly to consider the effect of labor-saving economies and the means which may be available for alleviating the effect. The members of the committee have been gathered from some of the leading universities and colleges, the United States Department of Labor, and the Social Science Research Council.

Cost Accounting

Research into railroad cost finding and the possibility of introducing new accounting and statistical methods which will promote this end is being carried on for the Co-ordinator by John H. Williams, C. H. Crandall, an accountant on the staff of the Interstate Commerce Commission, and an advisory committee including railroad accounting officers and others. Mr. Eastman has stated that the object is to probe the possibility of a gradual development of cost finding and that "it is not the intent to impose a new system of accounting over night nor to adopt new methods generally without prior experimental tests."

Research

At the request of the Co-ordinator the Science Advisory Board of the National Research Council has appointed a committee to study the matter of scientific research for the railroads in conjunction with the railroad managements and the Co-ordinator's organization. The Regional Co-ordinating Committees also appointed a committee of railroad officers to collaborate and cooperate with it, and at the first meeting of the two committees, on December 18, arrangements were made for a survey of the subject and another meeting to be held in January.

On October 20 a questionnaire was addressed to steam and electric railroads as to the interests rail carriers have in motor, water, and other transportation facilities and the uses they make of them and on December 7 one was addressed to Class II, III, and IV railroads for the purposes of a study of the "short line problem."

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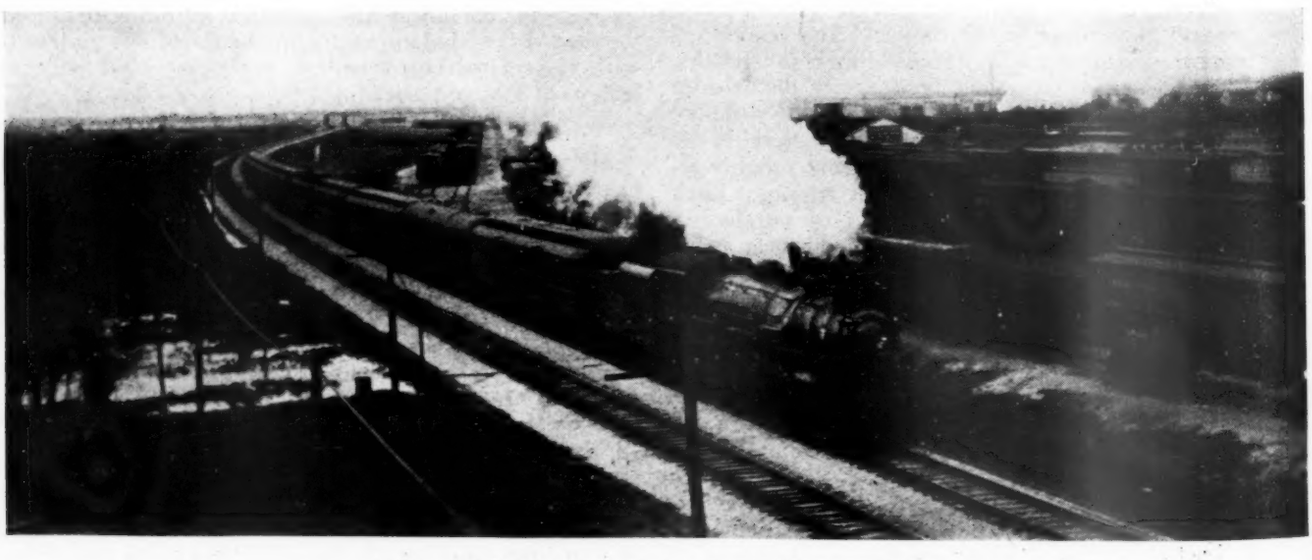


A Chicago & North Western Train at Proviso Yard, near Chicago

Federal Co-ordinator Joseph B. Eastman and His Regional Staff (C) *Underwood & Underwood*

"More Perfect Union" Urged By Eastman

Another year of co-ordinator plan recommended with trial of forced consolidations

By H. F. Lane
Washington Editor, Railway Age

FURTHER trial of the co-ordinator plan for another year, but with real power in the co-ordinator to issue orders unhampered by the labor restrictions of the present law and with power divided between the co-ordinator and the Interstate Commerce Commission to enforce consolidations of railroads which they believe to be in the public interest, are proposed by Joseph B. Eastman, federal co-ordinator of transportation, in his first report of a series he is to make recommending plans to "regenerate" the railroad business and "co-ordinate" the transportation system of the United States.

Not entirely satisfied with the role of "Questionnaire Joe," the "Doctor of Transportation," and not having completed his prescriptions after seven months of diagnosis, Mr. Eastman uses his best bed-side manner to suggest that the co-ordinator be given some, at least, of the attributes of the "Railroad Czar" with which he has been popularly credited.

Still inclined to the belief that government ownership and operation will be the ultimate solution of the railroad problem, but recognizing that the government is not now financially in a position to buy the railroads, he is not yet prepared to recommend resort to such a plan. Nor does he favor a "grand consolidation plan," such as the Prince plan, not being convinced that it would be "wise to force so radical and far-reaching a change upon the country under present conditions," or persuaded of the merits of any plan of consolidating the railroads into a very few systems which would follow and emphasize regional lines and retain, but at the same time vitally disrupt, competitive conditions.

Instead he proposes to the President and Congress that the railroad managements be given a further chance, "with the help of the government," to "apply the principles of statesmanship" in working out "a better organization of the railroad industry which will enable them to deal collectively and effectively with matters which concern them all." One or the other of these two remedies, government ownership or "grand" consolidation, will eventually be applied, he says, "unless the managements are able to remedy present ills in some other way." He finds that the difficulties are great and he is not at all sure that they can be surmounted.

"Theoretically and logically," Mr. Eastman says, "public ownership and operation meets the known ills of the present situation better than any other remedy," (except that the government as well as the railroads is in financial difficulties) but he also finds disadvantages in such a solution and predicts that if it arrives "the impelling motive will probably not be logic or theory, but the practical one that private enterprise and capital will not be able to carry on successfully." "Public regulation," he says, "is a hybrid arrangement."

Because of the restrictions against reduction in railroad labor, the results of the Emergency Transportation

Act, 1933, "have deviated somewhat from anticipation" and the co-ordinator has found his hands somewhat tied so far as actually accomplishing economies is concerned. The government not being in a position to buy the railroads, Eastman would have it treat them to a considerable extent as if it owned them by increasing the power of the co-ordinator and the commission. Therefore he recommends that the present co-ordinator plan be continued, as it can be by Presidential proclamation, for another year, or until June 16, 1935, and that the labor restrictions be changed. However, if the number of employees is to be reduced by changes in methods of operation or administration made, not because of lack of business, but for the primary purpose of performing work more efficiently, "salvage of the employees should be a charge upon the savings effected, within reasonable limits."

Gradual Approach to a "New Deal"

Suggestions are also made for making the office of co-ordinator a permanent one, with enlarged powers, but Mr. Eastman would not yet make such an arrangement permanent, "for it needs a further trial before it is given any final form." By way of a gradual approach to a "new deal" for the railroads he suggests that the co-ordinator plan has opened up possibilities which "make it wise, quite apart from existing economic conditions, to postpone the immediate consideration of any radical or major change in the organization and conduct of the railroad industry," and the opinion is expressed that the railroads may be able to "form a more perfect union" to deal with matters of common concern.

No specific grouping of the railroads in a forced consolidation plan is yet in sight and Eastman and his advisers apparently consider the Interstate Commerce Commission's general consolidation plan somewhat obsolete. It is proposed that the combinations be worked out gradually, perhaps following the lines of co-ordination which it would be expected would be worked out under the co-ordinator's leadership under his extended tenure of office.

The report was submitted in the first instance to the Interstate Commerce Commission, which transmitted it on January 20 to the President and to Congress. Although the law calls for the comments of the commission on recommendations for legislation, the commission expressed no opinion of its own on the Eastman report other than its view "that these documents constitute a valuable contribution to the study of the present transportation situation." Mr. Eastman had discussed the report with the President at the White House on January 18 and was to discuss with him this week his proposed further recommendations as to possible regulation of other transportation agencies. Meanwhile the House committee on interstate and foreign commerce has gone ahead with hearings on the Rayburn bill providing for regulation of bus and truck transportation without awaiting Mr. Eastman's recommendations on that subject.

No recommendations for immediate legislation are made in the first report but later separate reports will be submitted, one proposing a definite plan for modification of the labor restrictions, and the other proposing a definite plan for compulsory consolidations, through federal corporations created for the purpose, to be enforced by the commission on terms which it decides to be just and reasonable, whenever the co-ordinator requests that it initiate a proceeding for that purpose. Work on a bill for this purpose is in progress. It is also proposed that public directors be placed on the boards of such corporations, and that the consolidations be consummated by exchange of securities and without the use of cash.

Suggestions are also made, but without specific recommendations, for effecting reorganizations of carriers now or hereafter in insolvency or bankruptcy as speedily as possible, and for relieving the carriers entirely from the operation of anti-trust statutes.

Subsequent Report for Other Transportation Agencies

It is finally suggested that a subsequent report is to deal with the legislation which may be needed in connection with other transportation agencies and the proper co-ordination of all means of transport, or for improvement of the present interstate commerce act, and that this report will have a material bearing on the railroad situation.

Mr. Eastman in his report refers to the recent "suggestion in responsible quarters" that it be required, before dividends are paid, that certain percentages or amounts of earnings be set aside to create sinking funds for debt retirement, but he points out that "all such provisions, however, are in one way or another an ultimate burden upon earnings, and if enforced they will inevitably require a higher standard of earnings than has been thought necessary in the past." Incidentally he calls attention to the fact that although funded debt aggregates 56 per cent of the outstanding capitalization of the railroads, and the fixed-charge situation is worse than the 56 per cent ratio would indicate, the funded-debt situation is in certain important respects better now than in 1920. Then, the total outstanding capitalization amounted to 101 per cent of the book investment in road and equipment and the funded debt amounted to 56.7 per cent of that investment. In 1932, the capitalization was only 86 per cent of the investment and the funded debt was only 49 per cent of the investment. This improvement was due to the increase in corporate surplus, which at the end of 1932 aggregated $4,656,000,000.

Tentative Plan for Government Ownership Suggested

As an indication of the way in which operation might be conducted, if the railroads were acquired by the federal government, an outline of a tentative plan is submitted in an appendix, "only as a suggestion of some of the possibilities," under which the properties would be owned and operated as a non-political enterprise, separate and distinct from ordinary governmental business, through a corporation controlled by the government by stock ownership and managed by a board of five public trustees, with the aid of an advisory council appointed by representative business and other groups in the community.

The tentative plan proposes a federal corporation, to be named the United States Railways, to acquire the railroad properties through bonds guaranteed by the government. It would pay taxes to the federal government like any private corporation and also to states and municipalities provided they agree to uniform taxing provisions approved by the trustees. The government would meet any deficiencies in earnings but the repayment of such appropriations would be a charge on the future earnings of the corporation. The company would be relieved of regulation by the Interstate Commerce Commission, except over rates, accounting, certificates for new construction, and acquisitions of other transportation agencies, but the commission would have no power to suspend changes in rates. The trustees would be under the duty, so far as practicable, of

producing net earnings sufficient to meet all charges, including bond interest and sinking-fund provisions.

Other Reports to Follow

The report deals with the question: I. Is there need for a radical or major change in the organization, conduct, and regulation of the railroad industry which can be accomplished by federal legislation?

It will be followed as speedily as possible by other reports dealing with the following questions:

II. Is there need for federal legislation to regulate other transportation agencies, and to coordinate properly all means of transport?

III. Is there need for amendments to federal statutes to improve details of the present system of regulating the railroads?

IV. Is there need for further federal legislation to improve railroad labor conditions and relations?

An appendix to the report contains a complete account, (80 typewritten pages) of the work of the co-ordinator and his organization from the date of his appointment on June 16 to December 31, 1933.

The other appendices are: The "Tentative Plan For Public Ownership and Operation"; "A Plan For New Railroad Legislation," by Leslie Craven, of the co-ordinator's research staff; and a report of the study of the Prince consolidation plan, by W. B. Poland, of the research staff, summarizing and reviewing reports from the three regional advisory committees appointed to co-operate in the study.

Mr. Craven reaches the conclusion that consolidations can be compelled and by a process, if need be, which will involve an exchange of securities without the use of cash. He also outlines a plan under which the government would participate in the management of the consolidated systems through paid public directors selected by and attached to the staff of a Federal Railroad Administrator.

The report on the Prince plan arrives at an estimate of $218,000,000, based on 1932 traffic, as an approximation of the economies which would result, or less than one-third of the original estimate of the proponents of the plan. Mr. Poland himself expressed opinions rather favorable to the Prince plan, or something like it. The Poland report states that the railroads could probably be put together in a way which would result in a material reduction in fixed charges, and that credit conditions would also be improved by the economies which would ultimately be realized, although it would take time to bring them about.

Following is the complete text of Mr. Eastman's conclusions:

Text of Co-ordinator Eastman's Conclusions

Theoretically and logically public ownership and operation meets the known ills of the present situation better than any other remedy. Public regulation of a privately-owned and operated industry, reaching deeply into such matters as rates, service, capitalization, accounting, extensions and abandonments, mergers and consolidations, is a hybrid arrangement. When an industry becomes so public in character that such intimate regulation of its affairs becomes necessary, in strict logic it would seem that it should cease to masquerade as a private industry and the government should assume complete responsibility, financial and otherwise.

While there are dangers incident to any governmental undertaking, so there are to any private undertaking and to any private-public undertaking. The history of the American railroads is proof enough of this fact. There is reason to believe that many of the dangers which are ordinarily seen in public ownership and operation can be brought under control, if suitable precautions are taken. I incline to the belief that such ownership and operation will be the ultimate solution of the railroad problem. However, if and when that time arrives, the impelling motive will probably not be logic or theory, but the practical one that private enterprise and capital will not be able to carry on successfully. That has been the general experience.

Nevertheless, I am not now prepared to recommend resort to public ownership and operation. This is for the principal reason that the country is not now financially in a condition to stand the strain of an acquisition of these great properties, imposing burdens which cannot be definitely foreseen and might well, in present circumstances, be disproportionately severe. The danger would be enhanced by the fact that there would be a comparatively long period before the new system could be got into smoothly-running order, and by the further fact that the railroad industry is now in a stage of accelerated evolution. This is true, indeed, of the entire transportation industry, and it is at least questionable whether the railroads alone could well be nationalized without including other forms of transport to some considerable extent. The British Royal Commission of 1930 was unanimously of the opinion that such inclusion would be necessary.

Forced Grand Consolidation Not Wise

Nor am I now prepared to recommend a grand consolidation plan. Any attempt to make such a plan effective speedily would require new legislation. It would precipitate a controversy in which many railroads, many communities, and labor would join with equal vigor and from which it would be difficult to emerge. Disregarding this practical difficulty, I am convinced that such a consolidation would have to be compelled and that it would not be wise, even if it be legally possible, to force so radical and far-reaching a change upon the country under present conditions. Nor am I persuaded of the merits of any plan of consolidating the railroads into a very few systems which would follow and emphasize regional lines, and retain, but at the same time vitally disrupt, competitive conditions. These comments apply to a plan of enforced and immediate consolidation. The subject of gradual consolidation will be discussed below.

What, then, shall be done? There are possibilities in the situation which, I believe, make it wise, quite apart from existing economic conditions, to postpone the immediate consideration of any radical or major change in the organization and conduct of the railroad industry. In the present stage of transportation evolution, these possibilities merit thorough exploration and are likely to throw needed light on the railroad future. To explain this, a brief discussion of the Emergency Act is necessary.

Labor Restrictions Have Prevented Much Actual Accomplishment

The results of this legislation have deviated somewhat from anticipations. As at first proposed, the Act had a comparatively simple purpose. The thought was that the railroads were wasting money by undue competition with each other and by inability to act together for the common good. They were enjoined to co-operate in avoiding waste, and to further this end a federal Co-ordinator was appointed with power, subject to review by the Commission, to require action when necessary.

Before the Act was passed, however, the National Recovery legislation took form, with the prime object of relieving unemployment. Inevitably economies in railroad operation are largely labor-saving economies, and a program for the railroads which would add to unemployment appeared inconsistent with the National Recovery program. The result was the restrictions on reduction in railroad employment which are contained in Section 7 of the Emergency Act.

These restrictions have prevented much actual accomplishment in the elimination of waste. Yet the Act is, I believe, serving a useful purpose in the railroad world. The original accent and emphasis were somewhat unfortunate. They created the impression of a decaying industry from which dead limbs and excrescences must be pruned, and which, to be saved, must be cut to the bone. This was not in fact the thought behind the Act, yet such an impression was created. The fact is that what the railroads chiefly needed is a new lease of life—a reinvigoration.

The situation is not hard to understand. The railroad industry is old, its habits were formed, and it was unused to competition from without. It had become accustomed to regulation, and wedded to the thought that the specific for low earnings is invariably increased rates. Then the old order in the transportation world changed, almost overnight. New agencies and methods of transportation were developed, which to some extent were either more comfortable, more flexible, or more expeditious than the old. They established certain new standards for the railroads to meet, in both freight and passenger service, and accepted methods of making railroad rates gave them an opportunity for growth which they otherwise might not have had.

The first reaction of the railroads, as a regulated industry, was to seek relief from the government through restraint of the other agencies. Lest there be misunderstanding, let me say that no intimation is intended that such relief may not be justified. That is a matter which will be discussed in a further report. The point here is that this avenue of relief was followed first.

The second and later reaction was self-help, through changes in operation, service, and rates.

Waste is more than a matter of duplicate or unnecessary service or facilities or labor. It can be found in failure to provide the service and charge the rates which will bring maximum use and revenues to the rails. The thought is, not that economies in operation should be neglected, but that the pursuit of such economies should be combined with efforts to increase the attraction and usefulness of railroad service, to the end that traffic and business may be increased. The railroads will then take on the aspect, not of a decaying or waning industry, but of one which is seeking economy and efficiency for the sake of growth and development. When once it is understood that this is the goal towards which endeavor strikes, the attitude of railroad labor to economies in operation will, I believe, change materially, particularly if steps are taken to prevent distress in the process of readjustment. In the administration of the Emergency Act, this thought of economy which aims at growth of business has been uppermost.

Many Problems Must Be Dealt With Collectively

Many of their vital problems, however, cannot be dealt with adequately by the railroads individually. They must be dealt with collectively, by the industry. As the industry is now organized, this can be done more effectively with government help than without. As indicated in detail in Appendix 1, the Co-ordinator has under way studies of such problems, in which the interest and aid of the railroads have been enlisted. Those studies it would have been very difficult to make without the help of the government. There is as yet insufficient organization and leadership in the industry for effective co-operation in such undertakings.

An illustration is the study of the handling of less-than-carload or merchandise freight and express traffic which is now nearing completion. Other studies of nation-wide scope are in progress, of the handling of passenger and carload freight traffic, of the practical application of scientific research, of the possibilities of car pooling, of the appropriate use of standardization and simplified practice, of other improvements in purchasing methods, of cost finding, and the like. It is quite possible that some of these studies will pave the way to a much larger use of motor vehicles as an adjunct to railroad service, and to a revamping and simplification of the freight-rate structure. They should disclose where the rails cannot perform the service as well and as cheaply as the motor vehicles, and where they can perform it better and more cheaply. If we are to have a properly co-ordinated system of transportation, such knowledge is essential. The railroads will also, I hope, find it possible, collectively as an industry and by centralized organization, to keep in close touch with the progress of modern science and be able to forecast, prepare for, and take advantage of future developments.

The regional studies, which go more to the elimination of duplication and waste in the operation of terminals, shops, and other facilities, will also show where economy and efficiency can be gained, if the railroads are permitted to, and will, co-ordinate such operations. But the underlying purpose will not be the mere saving of labor. The ultimate objective is better service, which will attract traffic and increase revenues.

Opportunities for Co-ordination

I may be unduly optimistic about these studies, but I believe that the results will be helpful. It is possible that many of the objectives which are sought in grand consolidation plans or even in public ownership and operation can be attained through co-ordination, pooling arrangements, and a better organization of the industry. It now seems probable that rather extraordinary opportunities for better and cheaper service will be disclosed, through the pooling of important kinds of traffic, and that such arrangements are possible without consolidation of railroad systems and, if the preservation of competition be desired, without substantial increase in the number of non-competitive points. Certainly these possibilities deserve exploration.

It is not too much to hope that the railroads may be able to "form a more perfect union" to deal with matters of common concern, such as scientific research, the establishment of standards, the adoption of new types of equipment and new forms of service, the unification of terminal operations, and readjustment of the rate structure. There is need, also, for a study of the organization and administration of individual railroads, to determine whether methods which originated years ago meet present-day demands. Such a study would have the further advantage of throwing light on the character of organization required for the administration of much larger units, if such were eventually created.

Much will depend upon the railroad managements. They are of one mind in opposition to public ownership and operation, and in general they are against grand consolidation plans. One or the other of these remedies, however, will eventually be applied, unless the managements are able to remedy present ills in some other way. This alternative, if it be possible, can only take the form of a better organization of the railroad industry which will enable them to deal collectively and effectively with matters which concern them all. The managements must pull together instead of pulling against each other in a great variety of different directions. The difficulties are great, and I am not at all sure that they can be surmounted. The tendency to cling to assumed individual advantages in preference to those which would be gained by co-ordination or correlation is ingrained, and, it may be, impossible to overcome. But it is well that the managements should have the chance to apply the principles of statesmanship, and with the help of the government, at least at the outset. Much will be learned in the process.

In its report a year ago, the National Transportation Committee made these observations:

"The data before us indicate that (whatever may be the limits to which actual regulation or administration is extended) the necessity for planning and for comprehensive information on the whole transport problem is absolute. A cogent railroad argument is to the effect that the government has regulated the initiative out of the railroads, and that by reason thereof they are in their present plight. While there is a tendency to overemphasize this, three facts remain: First, that the government, principally through the agency of the Commission, has for many years assumed to dominate the railroad administration; second, that railroad policy and management are not abreast of sister industries; and, third, that some railroads are in perilous condition. Nobody can assume authority without accepting responsibility. The existing railroad condition speaks for itself to say that regulation by the Commission has left something to be desired.

"The organization should be reformed without expansion to act along wider and more affirmative lines, with less attempt to run the business of transportation and with more concentration on protection to the public, and maintenance of a healthy national transportation system. It should have inquisitorial powers and duties to keep constantly abreast of changing developments, and should be required to report annually to Congress on the state of the nation's whole transport system, with its recommendations for betterment."

Without endorsing all of the specific statements, some of which are not wholly accurate, the general thought behind these observations is sound. The Interstate Commerce Commission has had a remarkable record among governmental agencies for independent, non-political action and devotion to duty under pressure of very heavy work. As one who has served on that body for 15 years, however, I know the difficulty which it encounters in pursuing general studies of transportation problems and in developing broad plans for the improvement of transportation conditions. The Commission is faced with the constant necessity of deciding a multitude of cases, many of them exceedingly complex, and under pressure not to delay its decisions. This routine work which is its primary duty absorbs its attention, and little time is left for research and thought on broader lines.

Suggestions for a Permanent Co-ordinator

In my judgment, there should be an officer of the government with powers like those of the present Co-ordinator. However, I would not yet make such an arrangement permanent, for it needs further trial before it is given any final form. From present experience I derive the following propositions:

1—Such an office should not assume the form of a bureaucratic establishment. It should be carried on with a comparatively small and flexible staff. It should be regarded as a means of government aid to, rather than domination of, the transportation industry. The officer in charge should not have the aspect of a director general or administrator of the industry. So long as the railroads are privately owned and operated, the emphasis should be on the private management. It should be aided in the development of initiative and enterprise, rather than restrained. The officer of the government should lend his aid to the promotion of leadership in the industry, to organization for common ends, and to the initiation of general studies of various phases of operation, service, charges, and management, where such studies are needed. He should have full power to procure information and require studies, and should also be authorized to utilize the services of men loaned by the industry for specific purposes, but not to require such services. To secure such help, he should depend upon his ability to convince the industry of its value. He should, in short, be primarily a means of concentrating and bringing to focus the best thought of the industry, rather than a means of supplying or imposing thought from without.

2—The present title, "Federal Co-ordinator of Transportation," will do. His field of activity should ultimately be extended, however, over all transportation agencies which are subjected to federal regulation. He should not be a member of the cabinet,

but should be strictly non-political in status. He should be appointed by the President with the advice and consent of the Senate. For the present, the office should be temporary, as it now is. If later the office is made permanent, I am inclined to believe that the term should be indefinite rather than fixed. There should be no danger of having to endure incompetent or otherwise unsatisfactory service for a long term of years. The Co-ordinator should be subject to removal at any time by the President. The nature of the work is such that if it were done well the danger of abuse of the power of removal would be remote.

3—The funds for the support of the office should be obtained, as at present, by direct assessment upon the industry. About $400,000 per year, is now obtained in this way from the railroads. This amount could be somewhat increased to advantage. It should not be forgotten that the Co-ordinator is now receiving help from the Commission, much of it overtime work, which can be justified only as an emergency matter. However, if the field of activity were extended, whatever amount might be assessed should be distributed among all of the transportation agencies affected.

4—It should be made clear that the studies of the Co-ordinator need not be confined to the elimination of "waste and other preventable expense," but may include all matters in transportation of general importance and affecting the public interest. He should not, of course, be expected to cover all possible matters, and the choice of subjects should be left to his discretion.

5—The Co-ordinator should endeavor to secure his results largely through voluntary action on the part of the carriers. The emphasis should be on the initiative of the private managements, at least until it is shown that this cannot be relied upon. To this end they should be relieved entirely from the operation of anti-trust statutes, both federal and state. With the degree of public regulation which is now exercised over the railroads and which may be anticipated in one form or another over the other transportation agencies, these statutes serve no useful purpose. The Co-ordinator should be given authority to arbitrate disputes between the carriers. For the time being his authority to order should be as provided in the present Act.

6—The restrictions upon reduction in railroad labor employment now contained in Section 7 of the Emergency Act should be changed. They go beyond what is reasonable and stand in the way of improvements in operation and service which in the long run will be of advantage to railroad labor. The employees cannot with wisdom oppose progress which will stimulate the growth and development of the industry. It is right and proper, however, that where changes in methods of operation or administration are made, not because of lack of business, but for the primary purpose of performing work more efficiently, salvage of the employees should be a charge upon the savings effected, within reasonable limits. A special report on this matter will later be transmitted. If general business conditions improve and if the efforts of the carriers are directed primarily to increase in traffic and secondarily to economies, the labor situation should be much less difficult than it is now.

7—The Co-ordinator should continue to be under the duty, as now, to recommend from time to time, to the President and to Congress, changes in legislation or new legislation for the improvement of transportation conditions. If defects in the legislation under which he operates develop, or if the need becomes clear for some major change in the organization, conduct and regulation of the transportation industry, he will be in a position to make this need known at once to the appropriate authorities.

The plan outlined above visualizes an officer of the federal government whose duty it shall be to concentrate upon the broader transportation problems free from preoccupation with hearings, arguments, and study of specific complaints, and who, without in any way administering the industry, can lend aid and assistance to it. As aforesaid, the success of this plan will depend, not only upon the Co-ordinator, but to a very considerable extent upon the private managements.

Railroad Credit

The plan suggested does not deal directly with the critical problem of railroad credit and the ability of the railroads to secure necessary supplies of new capital from private sources. Indirectly, if it results in an improvement of the railroad situation and earnings, it will have the effect of strengthening credit. As I view this problem, it resolves itself into the following propositions:

1—Railroad credit from private sources will in any event be negligible for some time. The dependence during this period must be on government credit. This should be extended freely, to the extent that there is reasonable security, for sound and well-considered expenditures which will add to employment and improve service to the public. Where funds are sought to meet debt maturities, either of interest or of principal, the policy now embodied in the Reconstruction Finance Corporation Act and the Emergency Act should be observed and somewhat amplified. That is, new government credit or the term of existing Reconstruction Finance Corporation loans should not be extended, if it appears to the Interstate Commerce Commission that the carrier is in need of financial reorganization in the public interest. This principle might appropriately be modified to permit of loans to meet maturities of underlying securities which the Commission believes would not be disturbed in a reorganization.

2—Reorganizations of carriers now or hereafter in insolvency or bankruptcy should be effected as speedily as practicable, and in a manner which will result in a very material reduction in fixed charges. I realize that there are some difficult questions to face in this connection, but the sooner they are faced and investors knew what to expect, the better for all concerned. In this connection it is significant to note that some of the most successful reorganizations in railroad history, notably those of the Santa Fe, the Union Pacific, and the Norfolk & Western, were effected in the midst of the financial depression which began in 1893, and that those whose obligations were deferred in those reorganizations later profited the most.

3—Future credit conditions, apart from the reorganization of carriers with unsound financial structures, depend largely upon future railroad earnings. The chances are that net earnings will revive rather rapidly with improvement in general business conditions, and if the general tone and enterprise of the industry can be improved at the same time, this will also have a favorable effect on credit.

4—The situation may be improved by progress with consolidations discussed below.

This credit problem is critical in its importance. Government credit to a privately-owned industry is defensible only as a temporary expedient. If private credit begins to revive, the Commission can be helpful in stimulating it by taking appropriate action with respect to undue accumulation of funded debt, the establishment of sinking funds or other reserves, and the regulation of rates.

Consolidations

That consolidations or other unifications of railroad properties, at least within certain limits, may often be desirable is conceded. I do not favor a grand plan of consolidation, to be accomplished either immediately or, as Mr. Craven proposes, gradually over a term of years. However, provision for compulsory consolidation under strict supervision merits a trial, both because it would permit such union of railroads to be accelerated where that may be desirable, and because it would, if Mr. Craven is right in his law, permit consolidations to be consummated by exchange of securities and without the use of cash. The latter result would be of most decided public advantage. Legal questions in connection with such a provision may require judicial decision, but the sooner this situation can be clarified the better.

Efforts towards co-ordination should not prevent the progress of consolidation, to the extent that it can be shown to be in the public interest. In my judgment, the Commission should be empowered, after full public hearing, to enforce such a consolidation on the terms which it decides to be just and reasonable, whenever the Co-ordinator requests that it initiate a proceeding for that purpose. I doubt also the necessity or desirability of requiring the Commission to adhere to any fixed plan of general railroad consolidation in this connection. Subject to such general standards as Congress may see fit to prescribe, a demonstration that what is proposed will be in the public interest should be the controlling factor.

Enforced consolidations should be through the medium of federal corporations created for the purpose. In fact it may be advisable to require such charters for all railroad companies. The Craven plan of public directors on the boards of such corporations should be put to test, when and where the Commission finds that it can be tried without detriment to other railroad companies not having such public directors.

Recommendations

So far as the conclusions reached above suggest possible amendments to the Emergency Railroad Transportation Act, 1933, there is no immediate need for legislation. The President has authority to extend the operation of Title I until June 16, 1935, and the matter of perfecting amendments may well be postponed until it becomes necessary to determine whether this legislation shall be given a more permanent status. This statement is not intended to apply to the amendment which is suggested to the labor restrictions of Section 7(b). Specific recommendations in regard to those provisions will be submitted later in a separate report.

Nor is immediate legislation necessary with respect to the suggestion that the carriers be entirely relieved from the opera-

tion of anti-trust statutes, both federal and state. The relief which can now be afforded under the Interstate Commerce Act and the Emergency Act will be sufficient for immediate purposes.

The suggestion with respect to loans or extensions of loans by the Public Works Administration and the Reconstruction Finance Corporation, I do not embody in a specific recommendation, because it should first be considered by those branches of the government.

The suggestion that the Commission be given authority, in certain circumstances, to compel consolidations will later be embodied in a specific bill, which will be submitted in a separate report. Work on such a bill is now in progress, but as it ventures into new, largely unexplored, and difficult territory, the preparation requires much time and care. The specific provisions of such a bill are of essential importance in the consideration of the proposal.

Eastman's Diagnosis of Railroad Troubles

The report begins with a consideration of the major ills in the railroad situation which appear to be in need of remedy. It discusses, first, the financial ills, in view of the fact that a more or less continual inflow of capital is essential to a healthy railroad system. In a preliminary discussion of railroad history Mr. Eastman said it was "not intended as a general critique of railroad management, which has many fine accomplishments to its credit," but as a "diagnosis of troubles."

Railroads Not Over-Capitalized

It is shown that the railroads are not in the aggregate over-capitalized, either in the sense that the par value of outstanding securities exceeds the money invested in the properties, or in the sense that it exceeds the value for rate-making purposes. Many individual companies are conservatively capitalized, but others are over-capitalized, whatever test be applied. The fluctuating commercial value, based on earning power, is now very low.

In considering the outlook for credit, the amount and character of railroad funded debt is said to be important. It aggregates 56 per cent. of the capitalization, which is described as a "high figure." The public has a very practical interest in this matter, to the extent that a high ratio of fixed charges impairs the credit of the carriers. Numerous bond issues go back to the early days, when there was a multitude of small companies, and carry first liens on lines which are now merely parts of larger systems. On top of these underlying issues has been built a structure of bond issues which may be secured by first liens on some lines, but by inferior liens on others. Most of the strictly first-lien issues have been closed, so that the railroads must rely, in marketing new bonds, on so-called junior issues. These will not, in most instances, be a good medium for the procurement of capital funds. In 1920, the ratio of funded debt to stock was the same as it is now, and yet several billions of securities were marketed in the ensuing 10 years. Credit conditions were very different then, however.

Credit Outlook Unpromising

The present attitude of investors is a most important factor for consideration. To ascertain this, a member of the Co-ordinator's staff interviewed numerous officers who have charge of the investment of large amounts of capital for insurance companies, banks, and like institutions, as well as large personal investors. He found that they are beset by fears with respect to railroad investments. The confidence inspired by the provisions of the Transportation Act, 1920, has gone, and disillusionment has taken its place. They fear the competition of motor trucks and other transportation agencies, the obsolescence and probable abandonment of much railroad property, what may happen from monetary inflation, the operation of the new Securities Act, the construction of the St. Lawrence waterway, the neglect of railroad maintenance, increase in taxation, domination of labor, the possibility that underlying securities will not be sufficiently protected in reorganizations, the delay in effecting railroad consolidations, regulation by the Commission, and a host of other things.

The extreme depression has demonstrated the dangers of a high percentage of funded debt in a way which has made a profound impression. The maturities which the railroads face are an added cause of alarm. For the next five years funded debt maturities in excess of $100,000, omitting debts to the Reconstruction Finance Corporation, total $1,533,700,751, distributed as follows:

1934	$372,688,213
1935	281,595,693
1936	407,168,618
1937	218,362,117
1938	253,886,110

Many railroads have an insecure floating-debt situation.

The situation created by the maturities in 1934 is not as serious as these figures might seem to indicate. To a considerable extent they relate to securities of railroads which are now in receivership or bankruptcy. In other instances they are maturities which the railroads concerned, like the Chesapeake & Ohio and the Norfolk & Western, will have little difficulty in handling. The total amount which is likely to involve difficulty is not much in excess of $80,000,000.

The state of mind of many investors is fickle. It rose to insane heights of confidence in the boom period, and it has now fallen to precipitous depths. With revival of business it is likely to rebound, but there is a hard road to travel before railroad credit will be established on a satisfactory basis.

Practical experience has shown the need for adequate depreciation reserves to protect against obsolescence as well as wear and tear and the action of the elements, and investors appreciate this need as they have not heretofore. They have come to a similar appreciation of the need for paying off debt, and talk of adequate sinking funds is widespread—not mere book reserves, but funds actually applied to debt retirement or invested in liquid assets. Liquid reserves accumulated in prosperity for protection of fixed charges in depression are also favored widely. Reorganizations of the carriers which are now, or may hereafter be, unable to meet their obligations will help the situation through consequent reduction in funded debt and fixed charges. But such reorganizations are difficult to accomplish quickly, and for this reason, and because of the losses to investors which they reflect, they affect credit in adverse as well as favorable ways.

Lack of Co-operative Management

Nor is the situation from the standpoint of management and operation satisfactory, says the report. The railroads together now form a single transportation system. Joint operations are on the whole of more importance than local operations. However, the single system is still made up of a large number of parts which are separately owned and managed, and there is no effective centralization of authority over many matters of common interest.

One reason for this state of affairs is the persistence of the doctrine of competition in the railroad industry, notwithstanding that it has been subjected, after the manner of a public utility monopoly, to a comprehensive system of public regulation. Not only has railroad competition been thus enforced, but it has been dominant in the private management of the industry. This railroad competition has always been keen, and the tendency is for it to become keener as traffic diminishes in volume. The result has been that as the railroads have been subjected more and more to competition from motor vehicles, waterways, pipe lines, and airplanes, they have competed more fiercely with one another. The shifting of points of production, manufacture, and distribution, caused by changing economic conditions, has had a similar effect. Because of this emphasis on conflicts in interest, much waste has occurred in railroad operation, and it has been difficult to agree upon general policies which would have been of common benefit.

A large proportion of the total traffic is handled over more

than one railroad. In the case of carload traffic, the ratio of tons carried to tons originated in 1932 was 1.81. In that year, over 16,641,000 loaded cars were interchanged. The excess cost of these interchanges over single-line movements is great. In the latter movements, where it is necessary to pass from one road division to another, the cost does not generally involve more than a classification, which is usually about 50 cents per car. The cost of interchanging from one road to another is frequently from five to twenty times this amount. Due to the large number of carriers, it is necessary to duplicate administrative, sales, and accounting effort. Due to the manner in which the many railroads interlace and the financial urge upon each to obtain a part of the haul on all traffic, the multiplicity of routes available for the movement of traffic is enormous. This results in a duplication of facilities and service far beyond any competitive need therefor. The waste of car-miles is very large.

Similar difficulty in co-operation extends into other fields. The numerous committees of the American Railway Association, or other railroad organizations, often do excellent work and recommend the adoption of certain standards or practices which they believe would be of general advantage. The fact is, however, that these recommendations frequently fail of general adoption, because of the high degree of individualism among the railroad managements. Similar difficulties have been experienced by the Association of Railway Executives in its activities.

The point may be illustrated still more forcibly by the efforts of the railroads to meet the competition of other transportation agencies. Here was a problem which concerned them all in much the same way. It called for experimentation, and also, eventually, for the adoption of many common practices, because of the needs of interchange service. There has been little collective grappling with this problem. Experimentation might with much advantage have been carried on at common expense, but it has been largely left to the individual railroads. There are innumerable opportunities for research and study in such matters as the design of new equipment and motive power or parts thereof, both freight and passenger, the use of light-weight metals, the auxiliary or supplementary use of motor trucks or busses, the readjustment of rate schedules, and the accommodation of service to the needs or desires of patrons. These are matters of common concern to all railroads and demand, to a considerable extent, uniformity in methods and practices, but until very recently they have received little centralized investigation, and it remains to be seen how effective the present efforts in this direction by the A. R. A. will prove.

For some time it has been evident that the present complex rate structure is based on principles which can not with advantage be applied in the face of the competition which other transportation agencies are offering, and that radical readjustments are necessary. Yet there has been little attempt to deal collectively with this question, so far as freight rates are concerned, and only of late has there been common consideration of the simpler question of passenger fares. The same may be said of the present chaotic handling of less-than-carload freight. Committees were appointed to study this matter, but they arrived nowhere.

The general situation, in brief, is one in which the numerous separate owners and managers of individual parts of the single railroad system are in need of a "more perfect union," just as the states were prior to the Constitution. The time is propitious for such a movement, because the competition which the railroads now have from other transportation agencies makes intense competition within their own ranks a much less sacred thing than it once was from the public point of view.

Defects in Public Regulation

Whether details of the federal regulatory system should be changed will be reserved for a subsequent report, Mr. Eastman says, pointing out that public regulation is largely conducted by the methods of judicial procedure in which cases are sharply contested and long drawn out.

Public regulation has been criticized, both on the ground that it has not protected the public sufficiently and also on the ground that it has been unjust to the railroads. Certain inherent consequences, however, have received less attention. Public regulation is necessarily an interference with management and it involves divided responsibility to a considerable degree. A regulated industry is in danger of loss of enterprise and initiative because of this division of authority and because, also, of the time and effort which its officials consume in the processes of regulation. The tendency may be to look to the government for relief or help, where self-help would be the the better policy.

Other Ills

Labor conditions and relations are susceptible to much improvement. The same may be said of the composition and selection of railroad directorates, and their indifference to the doctrines of trusteeship. What we now have, for the most part, is private ownership, combined with self-perpetuating managements for whose selection the actual owners are only nominally responsible. Certain New York financial houses, chiefly J. P. Morgan & Company and Kuhn, Loeb & Company, have for a long time had a practical monopoly in the marketing of the securities of many railroad companies. This has given them a position of influence, and at times of domination, in railroad affairs. Apparently they interfere very little in the ordinary routine of railroad management and operation, but on occasion they are important factors in the selection of directors or executives, or may exercise an influence on the purchase of supplies or upon other policies.

Public Ownership and Operation

Taking up the question of public ownership, Mr. Eastman says, the question is one not of fundamental theory but of practical expediency. The greater part of the railroad mileage of the world is publicly owned and operated. The staff of the Co-ordinator has canvassed the available literature on the railroads of other countries. There is a great variety of opinions as to public ownership and operation. It has had its evils, but also its benefits. There is no prevailing tendency to abandon it, although there is a marked tendency to change the form. It is clear that other countries have adopted public ownership, not as a matter of principle but for reasons of expediency. Often they have been forced into it because private enterprise would not build, or could no longer carry on. Because of this variety of underlying motives, it is idle to measure the results by the test of earnings. Nor is a demonstration of various evil results convincing. "The immediate question, in connection with both public and private ownership and operation, is whether demonstrated evils can be corrected. The ultimate question is which system, when fully safeguarded, will produce the better results."

The familiar examples of federal control in this country during the war period and of the Canadian National system are discussed, and are declared not to constitute convincing arguments against public ownership and operation.

The report finds that public ownership and operation would go further than any other remedy to abate the railroad ills described. Public credit would take the place of crippled private credit. Management and operation of the industry would be wholly united. Public regulation would largely merge with management and operation. Financial domination would cease. The important questions are whether other ills would take the place of those abated, how serious they would be, whether public opinion is ready for so radical a change, and how difficult and perilous the taking over of the properties would now be.

Various real dangers incident to public ownership and operation are discussed, together with possible safeguards. These dangers include political interference in management, the difficulty of administering efficiently so large a unit, the elimination of competition, the question of labor relations, the state of public opinion, and the cost of acquisition. The latter is found to be the most serious danger at the present time.

A Problem in Organization

Whether or not the railroads could be administered effectively as one gigantic unit is a problem in organization. The largest railroad system in the country at present from the standpoint of traffic handled is the Pennsylvania, and the largest from the standpoint of territory covered is the Southern Pacific. Both have had administrative difficulties. The Pennsylvania now seems to have made progress towards solving them, and the Southern Pacific is working on the same problem. Railroad organization for administrative purposes is a matter to which more attention might well be given. It has largely fol-

(Continued on page 167)

A Canadian Pacific-Canadian National Pool Train Near Dorval, P. Q.

Canadian Railways "Co-ordinating"

Make steady progress in eliminating competitive wastes— Motor regulation badly needed

By J. G. Lyne
Financial Editor, Railway Age

WITH the appointment late in December of the board of three trustees which succeeds the board of directors of the Canadian National Railways, and their taking over the direction of the company's affairs on January 1, 1934, the Canadian National-Canadian Pacific Act, 1933, passed by the Dominion Parliament in July, 1933, may be considered as now in full effect.

Great Possibilities for Co-operative Action

This act, it will be remembered, was passed as a result of recommendations made by a Royal Commission, headed by Chief Justice Duff, and its principal feature is provision for economies by curtailing competition between the Canadian National and the Canadian Pacific. Such curtailment may take the form of pooling of services or revenues, joint use of terminals, elimination of duplicate facilities and such measures. The act contemplates that steps toward this co-operation shall be taken by the managements of the two properties. If, however, any proposal is made by one company to which the other does not agree, then the company making the proposal may ask for the appointment of an "arbitral tribunal" made up of one representative of each company, with the Chief Commissioner of the Dominion Railway Board as chairman (two additional members may be appointed by the president of the Exchequer Court of Canada on important cases). The tribunal will settle the dispute and thus has the power to enforce co-operation between the two companies to a degree which may be desired by only one of them.

It would appear likely, therefore, that Canada is today facing a development of railway "co-ordination" and elimination of duplication such as has never before been witnessed on this continent—such as, perhaps, was envisioned for the United States when the Emergency Transportation Act, 1933, was drafted and before the labor amendments were inserted making effective co-ordination impossible. The possibilities of such railway co-operation in Canada are great. Each of the competing systems has its own commercial telegraph service and its own express service. Each has its chain of hotels, although many of these are not competitive. There is also a great deal of parallel mileage and a number of opportunities offer for profitable consolidation of terminal operations.

The suggestion has been made more than once that the answer to Canada's railway problem might lie in the consolidation of the two leading systems under one management—either under government or private control. This proposal would not, however, eliminate the debt of the Canadian National Railways, interest upon which must be paid in large part by the taxpayers of Canada. Neither would it be of any assistance in reducing operating costs of lines of light traffic into sparsely settled areas which must be kept in operation for reasons of national policy. The economies which could be secured by consolidation, such as duplication of facilities and

Operating Figures for First Eleven Months of 1932 and 1933

	Canadian National			Canadian Pacific		
	1933	1932	Decrease	1933	1932	Decrease
Gross	$136,166,245	$149,189,913	$13,023,668	$104,356,950	$114,235,513	$9,878,563
Expenses	131,168,187	143,158,757	11,990,570	86,741,243	96,456,278	9,715,036
Oper. Net	$4,998,057	$6,031,155	$1,033,098	$17,615,707	$17,779,235	$163,527

services, it is argued by friends of the present plan, can be secured equally well by co-operation between the companies, whereas the continuance of two companies will tend to perpetuate the friendly rivalry which keeps the personnel of both companies on the alert. Such at any rate appears to be the dominating idea behind the new legislation in Canada, and its effectiveness is now about to be given a thorough trial.

Novel Organization of C. N. R. Management

The management of the Canadian National Railway under the new legislation is, in some respects, unusual. The board of trustees of three members will have the ordinary powers of a board of directors, but the chairmanship of this board is a full-time position and the chairman, who is not a railway man by training, will perform functions usually combined on most American railways in the presidency, which latter position will continue to head the operating organization of the property. Judge Fullerton, the new chairman of the board of trustees, comes to that position from the chief commissionership of the Dominion Board of Railway Commissioners. Before he went to that position in 1931 he had been a jurist of distinction, having been chief justice of Manitoba. A Conservative in politics, he is nevertheless believed to be a determined foe of political interference with the management of the railway and, as such, his appointment has been looked upon with approval by many persons who do not share his political views. He is also known as a student of the competitive situation which has arisen with the development of motor transport and may be expected to make a material contribution to the solution of this important problem.

Proposals for Motor Transport Regulation

This is one aspect of the railway problem in Canada which was touched upon in the report of the Duff Commission but upon which no definitive action has as yet been taken. By reason of the great size of Canada's provinces, motor traffic is intraprovincial to a much greater degree in the Dominion than it is intrastate in the United States. The provinces have much the same exclusive powers over intraprovincial traffic as the states have over intrastate traffic. Interprovincial motor transportation being but a slight fraction of the total traffic, therefore, it is believed that the initiative in establishing thoroughgoing regulation of commercial motor vehicles must be taken by the provinces. To encourage such action a conference at which all the provincial governments were represented was held in Ottawa in December and the fundamentals of a comprehensive policy for motor transport regulation were discussed, with the distinct hope that at least some of the provinces may be moved to take action in this direction during the current year.

The motor transport operators themselves have expressed a desire for reasonable regulation and an outline of the form proposed regulation should take has been offered by the Canadian Manufacturers' Association as follows:

1—Every motor vehicle operator should first obtain a certificate of convenience and necessity before being allowed to operate on the highways.

2—Rates and charges should be filed with an appropriate public authority of the province.

3—Rates or charges thus filed should not be altered without due notice to all concerned and while any given rates are in effect the common highway carriers should accept consignments for delivery without undue discrimination between customers and commodities.

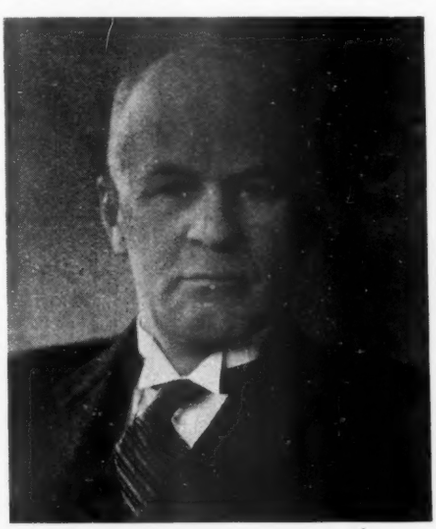
4—Each operator should be insured against the major risks of operation.

5—Each operator should be required to keep accounts on some prescribed system.

6—Each operator should be required to issue a bill of lading for each shipment and the conditions and form of such bill should be uniform throughout the country.

Fifth Year of Declining Traffic

The Canadian railways in 1933 did not fare as well, compared to 1932, as did the American lines. This fact is the more significant when it is realized that 1928 and not 1929 registered the peak of traffic and earnings on the Canadian roads, which thus have just completed their fifth successive year of declining revenues. Total car loadings in Canada in 1933, for example, were over 6 per cent less than they were in 1932, whereas on the American lines they were 2.5 per cent greater. Gross revenues of the Canadian Pacific for the first eleven months of the year were over 9 per cent less than for the same period in 1932 and the estimated gross revenues of the Canadian National for the entire year were less than those of 1932 by almost an equal percentage. By contrast, in 1933 gross revenues of the United States railways were only in the neighborhood of one per cent less than those of 1932.



Canadian Gov't Photo

Judge C. P. Fullerton, Chairman of Trustees, C. N. R.

Both roads were, however, able to bring about further marked operating economies in the face of the declines in revenues, with the result that the Canadian National looked forward to practically the same net operating revenue—approximately $6,000,000—as it had in the preceding year. The net operating revenue of the Canadian Pacific for the first eleven months of the year totaled $17,615,707, a reduction of but $163,527 from that of the same period in 1932.

Canadian railway managements, as these figures clearly indicate, were mainly concerned in 1933 with effecting economies. Unprofitable agency stations were closed and train mileage—particularly that of passenger trains—was greatly curtailed. Wage reductions were made effective which bring the rates of

pay of most employees 15 per cent below the levels obtaining prior to 1932, as contrasted with an average "deduction" of ten per cent in effect on the railways of the United States. The Canadian Pacific and the Canadian National now operate pooled passenger train services between Ottawa and Toronto and between Toronto and Montreal, which have effected considerable savings for the railways without measurably curtailing service to the public. Other economies brought about by co-operative action of the managements of the two railways include joint switching and car cleaning agreements and joint operation of freight houses. The new legislation, it is expected, will permit further extension of co-operative activity of this kind.

According to the law as it now stands, the Canadian government may no longer fund the deficits after fixed charges incurred by the Canadian National, as has been done in the past—a practice which has resulted in adding constantly to balance sheet liabilities already so large as to preclude either earning a return or a reduction in principal from the operating earnings of the railway. Hereafter any deficit after charges incurred by the National System will be a budget item to be covered in the fiscal year by the government's own budget. The Canadian National Railways reduced its new money requirements from the public treasury $1,000,000 in 1933, as compared with 1932, in which latter year they had declined $42,000,000 from 1931.

The Candian Pacific—one of the strongest of corporations in normal times—in 1932 had net revenue of $20,089,984, as compared with fixed charges of $23,619,529. In 1933 with net revenue approximately the same as in the preceding year, it is clear that there was a failure also to cover charges. Early in 1933 the company found it necessary to discontinue dividends on both preference and ordinary stock.

President Beatty of the Canadian Pacific has recently drawn attention to the unfavorable effect on Canada of prevailing prices of wheat in view of the Dominion's reliance on that commodity as one of its principal products, and has looked with favor upon the progress being made by some farmers to diversify their products, rather than placing such great reliance upon one crop. Be that as it may, the fact remains that the outlook for wheat is at least much better than it was a year ago and to that extent is a factor favorable to Canada and the Canadian railways. In addition, there remains on the farms and in local elevators in Western Canada, particularly in the territory served by the Canadian National, a large carry-over from last year's grain crop, the movement of which should help railway traffic during the first half of the current year.

In spite of the decline in traffic, the roads were able to maintain their operating efficiency as the following Canadian National figures for the first ten months of the past three years will show:

	10 Mos. 1933	1932	1929
Gross tons per train	1,528	1,461	1,476
Net tons per train	637	621	641
Gross ton-miles per train-hour	24,322	23,133	19,740
Freight train-miles per train-hour	15.9	15.8	13.4
Fuel consumed per 1,000 G. T. M. (pounds)	114	118	125

In an effort to meet motor truck competition both of the principal Canadian lines have been experimenting with door-to-door service and with reduced rates. The new legislation specifically authorizes the railways, either jointly or individually, to provide highway services in any form, either independently or in connection with rail service. While reduced rates and store-door service have been to some degree successful, it is realized that instablity of motor transport, with uncontrolled rates, has an advantage with which the railways cannot cope effectively. Realizing that the motor vehicle has a definite field in which it is economically supreme, the railways believe it impossible to define that field and restrict motor transportation to it in the absence of regulation of motor transport similar to that under which the railways operate—which is to say that the problem of motor competition in Canada is exactly the same as it is in the United States, with the exception that it is probably not quite as severe in most areas.

As could be expected under prevailing conditions, railway construction was at a complete standstill during the year. No new lines were completed or under construction. Instead 82 miles of line were abandoned. Similar quiet obtained in the equipment market. No new passenger cars and locomotives and only 75 freight cars were ordered. The Canadian National completed a new passenger station at St. John, N. B., restored a pier and a bridge at Fredricton, N. B., and undertook grade separation work in London, Ont. Construction of a new hotel at Vancouver, B. C., was halted, and no further steps were taken with regard to the great new passenger terminal at Montreal, for which many elevated structures have been erected and much excavation done. The Toronto, Hamilton & Buffalo completed a considerable grade crossing project in London, Ont., and a new station at Hamilton.

* * * *

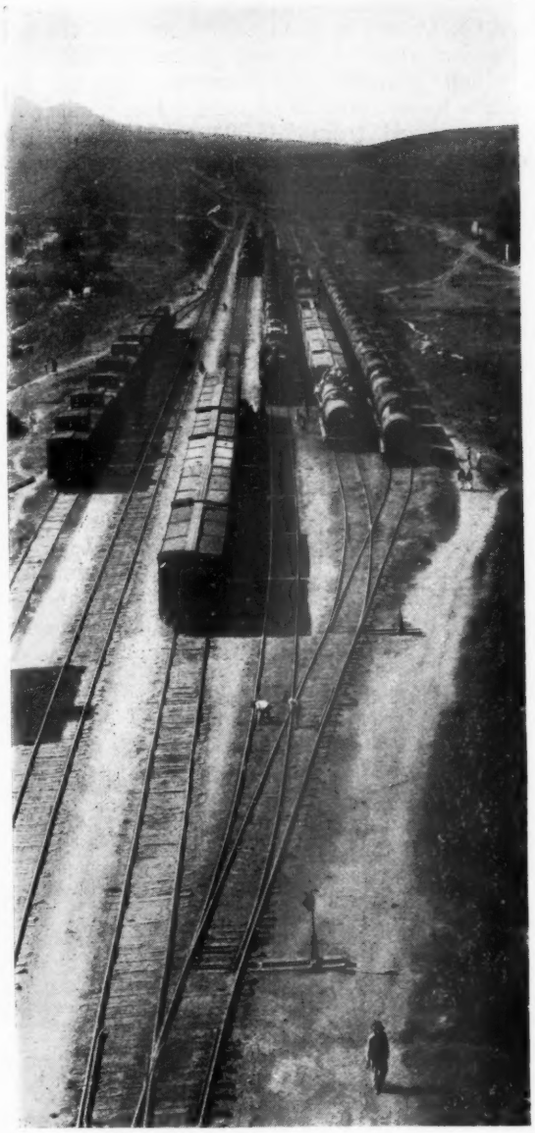
On the Central of New Jersey near Dunellen, N. J.

Mexican Railways Make Better Showing

Traffic increased and operating ratio was lowered in spite of heavy losses in Tampico hurricane

By Nicolás Procel

Executive Vice-President, National Railways of Mexico, Mexico, D. F.



The Classification Yard at Cardenas

THE moderate upturn in business in Mexico, resulting from better crops, increased mining activities, greater commercial stability and larger exports, principally to Europe, gave rise to a somewhat heavier traffic on the railways of Mexico during the last year, which in turn made possible better operating results, although, unfortunately, these results do not reflect the full improvement effected by reason of the destruction created by the Tampico catastrophe and by unusually severe washouts in other parts of the country.

The general sentiment is now optimistic and the prospects for the future are encouraging, not only on account of the fact that business in general is picking up, but principally because mining activities are very promising as the price of silver goes upward. The importance of this development to the railways of Mexico is evident when one recalls that it is not long since ore shipments constituted approximately 40 per cent of the traffic of the railroads in Mexico. Particularly because of increased mining activities, the National Railways have had to rent 400 box cars from American lines, these cars having been in our possession for about six months.

There were no substantial changes in the administration's policies relating to the National Railways during the year, and the objective has been to perfect the organization set up previously, applying modern methods with a tendency to standardize recognized practices as conditions permit. Owing to the fact that Alberto Pani resigned as secretary of finance during the year, he automatically gave up the post of president of the board of directors of the National Lines and Marte R. Gomez, sub-secretary of finance, was appointed in his place.

Tampico and Other Disasters

The outstanding event of the year was the Tampico catastrophe and the unusually severe washouts on the Gulf, Cardenas and Southeast divisions of the National Railways. The hurricane, which struck Tampico on September 15 and continued for several days, destroyed station and office buildings, shops and warehouses, docks and tracks, and the floods were of such severity that a month later the water was still so deep as to cover the decks of flat cars. Considerable equipment, especially tank and box cars, was tied up for a long time, some being considerably damaged.

The inhabitants in common with the railroad employees in Tampico and Dona Cecilia, suffered great material losses and many heroic efforts were made to rescue life and property, not without loss of life. Inland and water traffic was suspended from September 15 to October 16. Traffic from the oil fields to Mexico City was re-routed over the Gulf division via Monterrey, as the Cardenas division over which the major portion of the fuel oil and gasoline moves normally was out of service from September 15 to October 20.

Washouts in other parts of the country were also severe during September and October and the repairs to the track, bridges, buildings, etc., cost the company close to $2,000,000, Mexican currency. This destruction was aggravated by the long traffic interruptions over extended areas which paralyzed traffic, with consequent losses in earnings. Interruptions on the Southeastern division extended from September 23 to October 20, when operation was reopened to the Guatemala border.

In spite of these disasters, the operating ratio of 88.36 that prevailed on the National railways in the first 11 months of 1933, as compared with 94.40 in the same period of 1932, is indicative of the improvement that was effected during the present year. The operating ratio in the 12 months of 1932 reached 94.38, the highest since 1923 when the ratio was 96.44. A heavy recession in business, which resulted in a consider-

able decline in traffic, in addition to extensive washouts in September, October and November, 1932, which led to operating deficits for those months, account for the year's high ratio.

Statistical Results

The following statistical data, which refers only to the National Railway System and covers the first 11 months are indicative of the improvement obtained in 1933 over the same period of 1932.

The monthly average total locomotive kilometerage, including yard service, was 2,369,955, an increase of 108,468 kilometers as compared with the 11 months of the previous year. Monthly freight train kilometerage increased 84,761 and passenger trains increased their kilometerage 105,687, while mixed trains decreased 18,944, some of this brought about by conversion to passenger service. Total monthly train kilometerage rose from 1,814,414 to 1,891,316.

Gross ton kilometers (freight and mixed) for 11 months increased from 7,367,205,076 to 8,068,688,427, while net ton kilometers climbed from 2,897,562,403 to 3,228,803,892, an increase of 331,241,489 or 11.4 per cent, over last year.

Freight earnings increased from $46,396,594 for January to November, 1932, inclusive, to $52,340,800 for the same period of 1933; passenger earnings rose from $13,013,717 to $13,940,061; express earnings grew from $6,415,079 to $6,662,328 and miscellaneous earnings climbed from $1,228,497 to $1,283,125, with the result that gross earnings were $74,021,324 as compared with $67,053,887, an increase of $6,967,437 or 9.4 per cent over last year. Operating expenses rose from $63,297,270 to $65,403,089, an increase of $2,105,819 or 3.3 per cent, which led to the decrease of 6.04 per cent in the operating ratio, reported above.

Transportation Unit Costs

Direct transportation freight train costs were reduced from $1.14 in 1932 to $1.09 per 1,000 gross ton-kilometers handled, this figure including only the cost of fuel and train and enginemen's wages. It might be added that this unit cost dropped from $1.19 in April to $0.99 in November, by reason of the heavier tonnage handled in trains and the smaller proportional fuel consumption.

Freight train kilometers increased 724,567 during the first 11 months of 1933, and the average direct cost per kilometer fell from 69.5 cents in 1932 to 67.5 cents in 1933. Freight train speed contributed to this lower cost per kilometer, as the average was 23.4 kilometers per hour as compared with 23.3 kilometers in 1932. The determining factors were a smaller fuel consumption per train kilometer, aided by a slight reduction in the prices of fuel and by a reduction in train and enginemen's wages, through less payments for penalty mileage, etc.

The utilization of motive power by the transportation department was 76.9 per cent in 1933, as compared with 77.0 per cent in 1932; however, the net tonnage handled increased 11.4 per cent, while the gross tonnage increased 9.5 per cent, which difference is reflected by the fact that loaded freight car kilometerage increased 10.3 per cent and that of empty cars only 5.7 per cent.

Net ton-kilometers increased from 313 in 1932 to 324 in 1933, and gross ton kilometers per train-mile increased from 730 to 743. Total loaded freight car kilometers rose from 127,487,359 to 140,567,569 and empty freight cars traveled 65,010,588 kilometers during the 11 months of 1932 and 68,705,464 in 1933. Of interest is the fact that freight car days decreased from 4,863,937 to 4,854,792 which indicates that more net tonnage was handled with a lesser number of cars. The number of cars loaded increased from 285,394 to 319,535. The ratio of loaded to empty car kilometers per car day increased from 66.2 to 67.2, and net ton kilometers per car day jumped from 691 to 776 and consequently, the net tons loaded increased from 22.73 to 23.04 per car.

Fuel Performance

Fuel consumption has been more effectively controlled since a special department was created in October, 1932, as evidenced by the following statistics, although the increase in traffic was also a direct factor in the decrease in proportional fuel consumption. While the total gross ton-kilometers handled in freight trains during the 11 months increased from 5,189,141,387 in 1932, to 5,974,830,422 in 1933, or 15.1 per cent, the total number of liters of oil consumed increased from 228,261,342 to 246,718,113, or 8.09 per cent. The consumption per 1,000 gross ton-kilometers declined from 47.8 liters in 1932 to 44.6 in 1933. Substantial economies have also been obtained, not only through proper fuel handling, but

A Portion of the Tampico Terminal During the September Storm

also because of better locomotive performance in the way of more conscientious repairs and fuel saving apparatus.

The number of serviceable locomotives, excluding those stored, decreased 10, while the number of serviceable locomotives stored decreased 83. The number of locomotives awaiting repairs or disposition increased 6 and those under repair decreased 6. The percentage of serviceable locomotives to the total decreased from 67.1 to 64.5.

Locomotive repair costs (labor) per 1,000 kilometers run amounted to $247.85 in 1932, but were reduced to $233.99 in 1933; material costs also went down from $139.60 to $123.25, making the total decrease from $387.45 to $357.24. Freight car repairs (labor) per 1,000 car kilometers increased from $10.57 to $10.69, and material decreased from $15.28 to $13.46, while the total decreased from $25.85 to $24.15. Passenger car repairs (labor) per 1,000 car kilometers increased from $14.77 to $15.88 and material from $13.11 to $15.78, while the total increased from $27.88 to $31.66.

Classified Freight Traffic

The improvement in crops and the increase in ore shipments resulting from the improvement in mining activities which started in the latter part of this year, as well as the diversification of the traffic, is shown by the following classification of the traffic of the National Railways system. In general, the increase of 673,766

commercial tons handled is indicative of the improvement obtained.

Merchandise	Tons 1932	1933	Increase	Decrease
Beans	46,641	75,062	28,421	
Beer	24,329	36,924	12,595	
Bullion	151,732	132,953		18,779
Cotton	48,518	69,966	21,448	
Coffee	29,154	48,988	19,834	
Coal	98,529	80,310	18,219	
Cement	91,771	108,703	16,932	
Coke	95,047	143,832	48,785	
Construction Steel	34,998	44,072	9,074	
Cattle	101,821	112,133	10,312	
Corn	331,951	388,619	56,668	
Charcoal	131,679	136,914	5,235	
Fuel Oil	228,325	245,772	17,447	
Fruits and Vegetables	211,160	273,727	62,567	
Flour	97,069	87,354		9,715
Gasoline	153,576	149,050		4,526
Lumber	168,012	205,118	37,106	
Lard	29,992	28,152		1,840
Machinery	20,643	25,647	5,004	
Minerals (ores)	466,865	580,440	113,575	
Miscellaneous	1,702,334	1,957,741	255,407	
Pulque (alcohol beverage)	88,270	84,443		3,827
Rice	47,112	46,503		609
Refined oil and prods.	127,409	142,813	15,404	
Sugar	156,976	145,962		11,014
Salt	61,266	67,918	6,652	
Tobacco	9,952	7,992		1,960
Wheat	199,226	200,120	894	
Wine and liquors	8,604	9,499	895	

Additions and Betterments

The principal change made in the physical property during the year was the conversion of a portion of the ex-Hidalgo division from narrow to standard gage, which was completed on January 14, 1933, on which date the first standard gage train was run. With this change, it was necessary to take up narrow gage tracks between Tellez and Tulancingo, 66 kilometers; between Tellez and Pachuca, 18 kilometers, and between Guadalupe and El Rey, 54 kilometers, a total of 138 kilometers. A section of standard gage line, 6.7 kilometers long, was constructed from Tellez to Soledad. This change brought about considerable savings in operation and maintenance, as heretofore two parallel lines were operated between the points mentioned.

The construction of the short line from Tampico to Mexico City was at a standstill throughout the year with 81 kilometers constructed to date south of Tampico. It was planned for work to be prosecuted during the year and contracts were signed for the construction of a larger and up-to-date railroad hospital in Mexico City, on the site of the present hospital at Colonia station. This project is estimated to cost $1,200,000. Work was begun the latter part of this year.

International Traffic

The average number of cars interchanged monthly between the National Lines and the American roads at the international border were as follows:

	Imports 1932	1933	Exports 1932	1933
Brownsville	6	4	18	9
Eagle Pass	46	47	42	55
El Paso	127	102	32	33
Laredo	229	307	146	153
Total	408	462	238	250
Water Ports				
Manzanillo	82	50	3	8
Tampico	50	85	442	480
Vera Cruz	110	270	255	521
Total	242	405	700	1,009

It will be seen that while rail imports increased 13 per cent, exports increased only 5 per cent. The Laredo gateway was the most favored with incoming freight. Import water traffic increased 67.4 per cent, exports also increased 44.1 per cent, the port of Vera Cruz being the most active.

Government statistics indicate that exports have turned to Europe, whereas imports to Mexico from the United States have increased, notwithstanding the existing high rate of exchange. This is corroborated by the above figures. Rail line imports from the north boundary increased, while exports decreased, and water line imports, most of which also originated in the United States, also increased, it being observed that exports, principally fuel oil, merchandise and raw materials, increased and that the major portion was destined to Europe.

This diversion of exports to the old world is explained by the fact that Mexican exporters obtain greater profits by selling in gold prices and paying costs in Mexican currency, while European merchants also obtain larger benefits because of the high prevailing prices in their markets. The prices of American goods have increased, although not in the same proportion that the value of the dollar has declined. On the other hand, prices of European goods have increased in proportion to the decline in value of the American dollar. This unbalanced trade, if encouraged to a large extent, may reach the danger line, where Mexico will be short of dollars for continued buying of American goods.

Railroads Concentrate on Traffic Recovery

(*Continued from page 107*)

and delivery service, designed to reduce delays in collection and delivery of l. c. l. freight, as well as to reduce the cost of transportation service to shippers, was widely adopted. Pick-up and delivery service had prevailed prior to 1933 in many parts of the country. This was especially true on the Pacific Coast, in the Southwest, in the Middle West and in the northern New England states. In 1933, however, storedoor collection and delivery for the first time was adopted on a broad scale by railways in the East and in the South. In March, several southern roads, including the Louisville & Nashville and the Nashville, Chattanooga & St. Louis, began to provide the service to their l. c. l. shippers and consignees, while late in the year, the Pennsylvania, the Erie, the Grand Trunk Western, the New York, Chicago & St. Louis, the Pere Marquette, the Chesapeake & Ohio and the Chicago, Indianapolis & Louisville made provisions for similar service to their customers.

Thus, by means of increased speeds over the road and reduced terminal delays, the railways in 1933 effected really striking improvements in their merchandise freight service as a part of their campaign for freight traffic recovery. As in the case of the improvements in their passenger service, the railways devoted themselves to providing the type of transportation service desired by shippers and consignees, not the type of service most convenient or economical from the standpoint of the railways.

Besides speeding up freight service, the railways were active in meeting competition by reducing rates on competitive freight. All-commodity and other special rates were extended to include more territory and to embrace more items.

In these and in other ways, the railways, in 1933, set themselves on the road to traffic recovery. They began and developed the adjustment of their service for both passengers and freight to conform to the modern needs and desires of shippers and travelers. The problem of competition is far from solved, but the railways, by their enterprise and resourcefulness in 1933, made striking progress toward its solution.

Uneven But Upward Is Trend of Year

1933 IN RAILWAY FINANCE

By J. G. Lyne
Financial Editor,
Railway Age

Sharp recovery after bank holiday, followed by moderate recession in fall, was resumed at close of year

WHILE the year 1933, judged by comparison with any standard other than that set by its immediate predecessor, was anything but satisfactory from a standpoint of railway finance, nevertheless, after a set-back in the early months of the year arising from the bank crisis, considerable progress was registered in climbing out of the depths of 1932. Traffic, revenues and net operating income especially showed gratifying increases over the preceding year, with the result that security prices advanced so that, at the end of the year, average prices of both stocks and bonds of representative roads as compiled by the *Railway Age*, stood at approximately the same levels as they did at the close of 1931. The upturn, it is true, "tapered off" early in the autumn and did not resume again until December, and security prices were highest, not at the end of the year as might have been the case had the improvement not been arrested, but in July.

At this writing, however, just past the middle of January, security prices are once again nearing the levels of last July. It seems tolerably safe, therefore, barring untoward developments in general business or unfavorable legislation, to foresee at the present time an amelioration of the railways' financial plight in 1934, as compared with 1933, at least proportionate to the gain which last year registered over its predecessor.

Chart A—Ten-Year Average Prices of Stocks and Bonds of Twenty Leading Railroads, With Dividend Disbursements on Same Relative Scale

1933 Dividends Estimated.

Railway security prices reached an all time low in May and June, 1932. They recovered rapidly thereafter in that year until early September, when there was a gradual recession culminating in April, 1933, a short time after the markets resumed operations following the bank holiday. Then prices rose to a peak in July, 1933, following which there was a period of recession, with appearances at this writing apparently indicating a revival of the upturn. It is highly significant that the drop in prices in April, 1933, did not reach the depths of that of the preceding summer; that the peak reached in July, 1933, was higher than that of the late summer of 1932; and that the recession which took place in the fall of 1933 did not go to the levels of the spring. Such action of markets—each succeeding major upturn reaching higher levels than the preceding one, with recessions ending at higher levels than those occurring previously—is evidence of a general upward trend, and that this evidence has per-

sisted in spite of government activities which might well have arrested it, gives assurance of considerable vigor in the economic forces which are making for recovery.

In 1932 the Class I railways as a whole failed by about 140 millions to meet their fixed charges. In the first eleven months of 1933 the cumulative deficit was slightly under 26 millions, with the probability that December net income would erase some of this accumulation. This situation, of course, has to do with the railways as a whole and not individual systems, many of which failed greatly to meet their fixed charges, while others were able to do so and have something left for the stockholders' account as well.

The railways made this record with gross revenues actually less than in 1932, but with the physical volume of freight traffic (revenue ton-miles) 8 per cent greater than that of 1932 and passenger traffic (revenue passenger-miles) 3 per cent less—the smallest percentage of reduction in passenger business for four years. The great saving which made this showing possible was in operating expenses, which in spite of greater freight traffic were decreased more than 6 per cent from those of 1932.

Table I—Comparison of Dividends and Taxes, 1911 to 1932

Year Ended June 30	Dividends*	Proportion of Net Income Paid in Dividends	Taxes*
1911	$397,068,724	81	$98,626,848
1912	339,964,855	85	109,445,407
1913	322,300,406	66	118,386,859
1914	376,098,785	108	135,572,579
1915	259,809,520	82	133,276,330
1916	281,936,371	47	145,517,034
Year Ended December 31			
1916	306,176,937	47	157,113,372
1917	320,395,779	53	213,920,095
1918	275,336,547	71	223,175,379
1919	278,516,908	62.5	232,601,397
1920	271,731,669	63	272,061,453
1921	298,511,328	95	275,875,990
1922	271,573,751	73	301,034,923
1923	296,127,048	53	331,915,459
1924	320,429,767	57	340,336,686
1925	342,020,885	49	358,516,046
1926	399,243,963	49	388,922,856
1927	411,581,093	61	376,110,250
1928	430,677,138	55	389,432,415
1929	490,125,673	55	396,682,634
1930	497,024,912‡	95	348,553,953
1931	330,150,873	245	303,528,099
1932	92,354,322†	166	275,135,399

* Not including switching and terminal companies.
‡ Excludes stock dividend of $9,600,000.
† Excludes stock dividend of $1,572,000.

The fluctuations during the year in the prices of selected railway stocks and bonds in 1933, as compiled by the *Railway Age*, is shown in Chart B. In Chart A the price range of these same securities over a ten-year period is traced, with dividend disbursements on these stocks shown on the same relative scale. These latter, it will be noted, are approaching the vanishing point.

In an article in the Annual Statistical Issue a year ago, reviewing railway finances in 1932, attention was drawn to the comparatively greater favor in which industrial stocks were held by investors as compared with those of the railways. This condition did not change

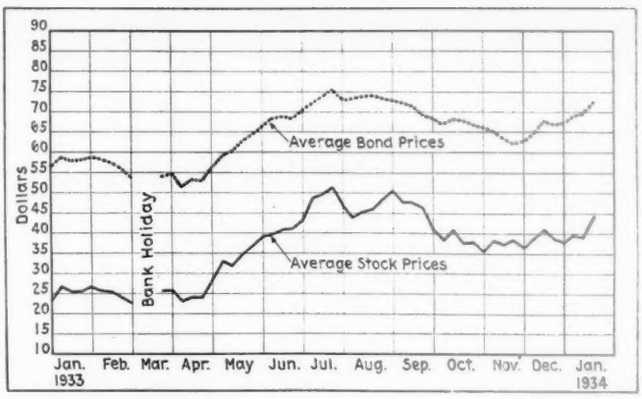


Chart B—Fluctuations in the Average Price of Twenty Leading Railroad Stocks and Twenty Bonds in 1933 and the First Three Weeks of 1934

during 1933, indicating that the circumstances making for comparative unattractiveness of railway stocks as investments continued uncorrected for yet another year. As was pointed out in last year's Annual Statistical Issue, railroad stocks, as reflected in the Dow-Jones average prices which extend back to 1897, formerly brought higher prices than industrials. In 1897, for example, the average price for railroad stocks was $51.71 and of industrials, $40.74. In the depression year 1907 industrial shares fell to 56.85 and those of railways only to 86.61. In 1921, however, the average railway stock price fell to 73.30 and of industrials to 78.12. In July, 1932, the railway average declined to 13.23 and the industrial only to 41.22.

New Financing at a Standstill

Continuing this disparity, when industrial shares reached their 1933 low point in the Dow-Jones compilation just prior to the bank holiday, the average price was 50.16, whereas railway shares at the same time averaged only 23.43. Similarly, at the peak of the upward movement attained in July, 1933, the industrial average reached 108.67 and the railway average only 56.53. While general business conditions improved considerably in 1933, therefore, stock prices certainly recorded no appreciable change in the disparity of railway prosperity as compared with that of other industry, which disparity can be accounted for only by the difference in treatment of the railroads by the government as compared with that accorded to other industry. An end to subsidies to railway competitors and the establishment of equality in regulation and labor standards of all forms of transport would probably put an end to the comparatively low prices of railway stocks.

The only public offering of railway securities made in 1933 was that of an issue of $12,000,000 mortgage bonds of the Cincinnati Union Terminal, guaranteed by the proprietary companies, bearing interest at 5 per cent, which was sold by a syndicate headed by J. P. Morgan

Table II—Railway Securities Sold to Public in 1916 and 1920 to 1933

Year	Bonds	Notes	Stock	Total R.R. financing	Total all financing	Per cent R.R. to total
1916	$229,000,000	$126,000,000	$16,000,000	$371,000,000	$1,864,000,000	19.90
1920	194,583,000	193,840,000	3,737,000	392,160,000	3,324,922,000	12.12
1921	455,125,000	202,928,300	27,222,500	685,275,800	2,780,874,000	24.64
1922	299,025,800	288,936,500	27,068,100	615,030,400	3,200,176,000	19.22
1923	165,956,000	354,720,500	59,140,850	579,817,350	3,602,704,000	16.04
1924	620,347,000	351,276,200	11,000,000	982,623,200	4,185,590,000	23.46
1925	374,020,500	151,753,740	30,934,430	556,708,670	5,234,992,000	10.63
1926	241,954,000	172,477,000	41,577,200	456,008,200	5,746,354,000	7.94
1927	686,939,500	89,184,600	210,596,900	986,721,000	7,830,641,000	12.61
1928	525,719,000	79,911,000	187,369,100	792,999,100	8,473,880,000	9.4
1929	418,984,000	180,322,000	275,269,240	874,575,240	11,007,170,000	7.9
1930	800,694,000	142,168,000	63,805,600	1,006,667,600	5,920,498,000	17.0
1931	453,824,000	105,209,000	.....	559,033,000	2,730,082,000	20.5
1932	11,827,000	13,125,000	.....	24,952,000	684,806,000	3.6
1933	12,000,000	.....	.....	12,000,000	335,812,000	3.6

& Co., at par. This issue was sold by the terminal company at 97½, making the average annual cost to the company 5.183 per cent.

Most financial activity during the year was concerned with the meeting of maturities—and in this the government through the Reconstruction Finance Corporation figured importantly, supplying a portion of the cash needed to meet almost all of the larger issues which came due during the year. An important exception occurred in the case of the Great Northern, which had to meet a maturity of $41,963,000 of bonds of the St. Paul, Minneapolis & Manitoba. Holders were asked to extend the maturity for ten years and were offered a small cash premium for assenting to the plan, the First National Bank of New York agreeing for a consideration to underwrite payment in cash at maturity on up to 25 per cent of the bonds.

Table III—Receiverships or Trusteeships Established in 1933

Name of Road	Mileage	Funded debt outstanding	Capital stock outstanding
Akron, Canton & Youngstown	171	$3,550,000	$1,500,000
Chicago & Eastern Illinois	939	33,587,036	45,891,400
Chicago, Indianapolis & Louisville	647	26,071,000	15,488,300
Coeur d'Alene & Pend d'Oreille	21 (a)	$44,000 (c)	544,000
Fonda, Johnstown & Gloversville	64	6,218,000	3,000,000
Georgia, Southwestern & Gulf	36	76,800	14,700
Gulf Coast Lines	1,901	53,535,000	15,000,000
International-Great Northern	1,160	48,271,000	7,500,000
Louisiana Southern	64	1,000,000	1,000,000
Meridian & Bigbee River	30	500,000	300,000
Minarets & Western	53	1,388,000	2,000,000
Missouri-Illinois	202	2,737,500	2,250,000
Missouri Pacific	7,412	350,932,500	154,639,600
Northern Ohio	152 (b)	3,300,000 (d)	4,230,000
Rock Island Lines	8,333	310,532,885	128,909,212
Spokane International	164	4,200,000	4,200,000
Townsville	11	22,500	240,000
Wilmington, Brunswick & Southern	35	183,750	165,000
Total eighteen companies	21,222	$842,805,971	$386,872,212

(a) Included in mileage of Spokane International.
(b) Included in mileage of Akron, Canton & Youngstown.
(c) Included in funded debt of Spokane International.
(d) Included in funded debt of Akron, Canton & Youngstown.

Government Loans Only Half Post-War Total

In 1934 maturities of funded debt will total some 300 millions, in addition to some 100 millions of equipment trust certificates and Chairman Jesse H. Jones of the Reconstruction Finance Corporation has announced that it will be necessary for the banks to shoulder a considerable share of the burden of refinancing. The private capital market, of course, is practically at a standstill as far as out-and-out investment is concerned, although holders of substantial majorities of most issues of sound companies have so far been willing to extend maturity dates or accept new securities in part payment for maturing obligations—so that 100 per cent cash has not been required in many cases. Upon the extent to which the private capital market gains confidence, or upon the willingness of the Reconstruction Finance Corporation to take its place, if it does not do so speedily, depends the safety of the capital structures of those roads with heavy maturities, as it did throughout 1933. As traffic and earnings increase, of course, more and more roads will reach a position where private investors and holders of their existing securities will be willing to meet their needs for funds.

Table IV—Foreclosure Sales in 1933

Name of Road	Mileage	Funded debt outstanding	Capital stock outstanding
New Orleans Great Northern	265	$8,248,000	$7,500,000
Savannah & Statesboro*	33	185,000	200,000
Total two companies	298	$8,433,000	$7,700,000

* Operation was abandoned on February 16, 1933.

In addition to the loans made by the Reconstruction Finance Corporation to enable railways to meet maturities and interest, the corporation also made some "work loans" to permit the inauguration of maintenance and repair programs. Besides these advances from the Reconstruction Finance Corporation—totaling $394,094,258 up to the end of 1933 (of which $57,014,636 had already been repaid)—another government agency, the Public Works Administration, had "allotted" some 200 millions to the railways by the end of the second week in January this year, some to be spent for maintenance work and some for new equipment and materials. The railways indebtedness to the government, therefore, as a result of the depression runs in the neighborhood of 540 millions which figure is only half of the total of advances the government made to the railways following the end of federal control in 1920—and all but a relatively small part of those advances have been repaid.

When compared with the hundreds upon hundreds of millions which the government has been donating to highway and waterway transportation, its expenditures for relief and public works and its huge loans to banks, agriculture and other interests as a part of the recovery program, the loans to the railways would appear to be among the safest and most conservative of all items in the budget. Past experience has shown the extreme likelihood that practically all the advances to the railways will be repaid (a good beginning was made even in 1933); but if not one cent were to be repaid, the burden on the taxpayers would be no greater than that they now have to carry for one year's federal expenditures on highways and waterways, which are outright donations to the users of those transportation agencies.

Table V—Partial List of Loans Unpaid from Reconstruction Finance Corporation or from Railroad Credit Corporation by Companies in Hands of Receivers or Trustees

Name of Road	R. F. C. Loans	R. C. C. Loans
Akron, Canton & Youngstown	.....	$233,040.09
Ann Arbor	$634,757	.....
Central of Georgia	2,917,631	1,679,844
Chicago & Eastern Illinois	5,760,868	2,010,208
Chicago, Indianapolis & Louisville	.....	1,793,980
Florida East Coast	627,075	.....
Fort Smith & Western	227,434	.....
Georgia & Florida	354,721	.....
International-Great Northern	.....	1,105,071
Missouri Pacific	23,134,800	3,689,937
Mobile & Ohio	877,599	785,048
Norfolk Southern	.....	290,000
Rock Island Lines	13,632,196	.....
St. Louis-San Francisco	5,190,000	3,805,175
Spokane International	.....	131.53
Wabash	15,735,583	.....

At the same time, credit should be given the government for its policy as regards R. F. C. interest, which was reduced from 6 per cent to 5½ per cent at the beginning of 1933 and again to 5 per cent on July 1, the latter reduction being contingent upon the railways making certain salary reductions; and again to 4 per cent on November 1. The Public Works Administration charges 4 per cent interest on its loans but allows the first year free of interest—such comparatively liberal terms being held out as an inducement to the railways to stimulate the revival of the capital goods industries.

The Railroad Credit Corporation, which was set up to receive and lend the proceeds of the temporary advance in freight rates permitted by the Interstate Commerce Commission in Ex Parte 103, ceased its lending operations on May 31, 1933, and has begun liquidation. Loans made by the corporation totaled $73,691,368, which had been reduced to $67,344,528 by the end of the year, and the corporation had distributed $7,425,992 to participating companies, being 10 per cent of the amounts deposited by them with it. The corporation's report for December disclosed that it had realized $558,006 from the sale of collateral. Outstanding loans mature at various dates in 1934 and 1935 and may be extended for not more than two years, but President Buckland of the Corporation

has stated that some curtailment of the principal is required when such extensions are made.

Dividends Decline Still More

Dividend disbursements in 1933 fell still further from the extremely low point reached in 1932. One of the mere handful of carriers which made disbursements on their common stock in 1932 was forced to abandon such payment in 1933. Dividend changes during the year consisted for the most part of reduction or cessation of payments on preferred issues, although there was an isolated instance or two of increased payments. Some of the more important changes during the year were as follows:

The directors of the Alabama Great Southern in December declared a dividend of $2 on its common stock, the first such disbursement made since 1932.

The Atchison, Topeka & Santa Fe paid $1.50 instead of the customary $2.50 per share on its 5 per cent preferred stock in the first half of 1933. In the second half $3.30 was paid, bringing the total for the year to $4.80, as compared with $5 heretofore paid.

The directors of the Canadian Pacific during the year voted no dividends on either its preference or its ordinary shares. The former carried regular dividends in 1932 and 31¼ cents was paid on each ordinary share in that year.

The directors of the Chesapeake & Ohio in August declared a quarterly dividend of 70 cents on its common stock—an increase of 7½ cents over the customary quarterly rate of 6½ cents.

Dividend action on its common stock was deferred by the directors of the Delaware & Hudson. The quarterly rate was formerly $2.25 but this was reduced to $1.50 in the latter half of 1932.

The directors of the Kansas City Southern in June omitted the dividend on its preferred stock upon which 50 cents per share was paid in the first quarter.

The St. Joseph & Grand Island paid a dividend of $5 a share on its senior preferred stock and $4 a share on its second preferred—the former being the first payment made on that issue since 1902 and the latter being the first declaration ever made in favor of the second preferred.

Receiverships Greatest in History

Eighteen railway companies with a total mileage of 21,222 were placed in the hands of receivers or trustees (the latter under the new federal bankruptcy act) in 1933, or approximately twice the mileage which fell into similar difficulties in the preceding year. At the end of the year the total route mileage of railways being operated by receivers or trustees was 44,334, which may be compared with 40,819 in 1894—the highest mileage previously reached of roads in serious financial difficulties. At the end of 1929 only 5,703 miles of line were in the hands of the courts, but two of the companies involved operating more than 1,000 miles of line and the remainder being small properties. In 1933, by contrast, there were ten lines of greater than 1,000 miles included,

Table VI—Mileage in the Hands of Receivers or Trustees

(Figures to 1932, Inclusive, from I. C. C. Statistics for Year Ended December 31, 1932. Figures for 1933 Compiled by *Railway Age*.)

Year ended	Miles of road operated by receivers at close of year	Net change during the year in miles of road operated	Number of roads in charge of receivers at close of year
June 30, 1894	40,819	....	192
1895	37,856	−2,963	169
1896	30,476	−7,380	151
1897	18,862	−11,614	128
1898	12,745	−6,117	94
1899	9,853	−2,892	71
1900	4,178	−5,675	52
1901	2,497	−1,681	45
1902	1,475	−1,022	27
1903	1,185	−290	27
1904	1,323	+138	28
1905	796	−527	26
1906	3,971	+3,175	34
1907	3,926	−45	29
1908	9,529	+5,603	52
1909	10,530	+1,001	44
1910	5,257	−5,273	39
1911	4,593	−664	39
1912	9,786	+5,193	44
1913	16,286	+6,500	49
1914	18,608	+2,322	68
1915	30,223	+11,615	85
1916	37,535	+7,130	94
Dec. 31, 1916	34,804	−2,550*	80
1917	17,376	−17,428	82
1918	19,208	+1,832	74
1919	16,590	−2,618	65
1920	16,290	−300	61
1921	13,512	−2,778	68
1922	15,259	+1,747	64
1923	12,623	−2,636	64
1924	8,105	−4,518	61
1925	18,687	+10,582	53
1926	17,632	−1,055	45
1927	16,752	−880	40
1928	5,256	−11,496	33
1929	5,703	+447	29
1930	9,486	+3,783	30
1931	12,970	+3,484	45
1932	22,545	+9,575	55
1933	44,334	+21,789	64

* Represents decrease for six months.

Table VII—Summary of Railroad Receiverships and Foreclosure Sales, 1876 to 1933

	Roads Placed in Receivership			Summary of Foreclosure Sales		
Year	Number of roads	Miles	Bonds and stocks	Number of roads	Miles	Bonds and stocks
1876	42	6,662	$467,000,000	30	3,840	$217,848,000
1877	38	3,637	220,294,000	54	3,875	198,984,000
1878	27	2,320	92,385,000	48	3,906	311,631,000
1879	12	1,102	39,367,000	65	4,909	243,288,000
1880	13	885	140,265,000	31	3,775	263,882,000
1881	5	110	3,742,000	29	2,617	137,923,000
1882	12	912	39,074,000	16	867	65,426,000
1883	11	1,990	108,470,000	18	1,354	47,100,000
1884	37	11,038	714,755,000	15	710	23,504,000
1885	44	8,836	385,460,000	22	3,156	278,394,000
1886	13	1,799	70,346,000	45	7,687	374,109,000
1887	9	1,046	90,318,000	31	5,478	328,181,000
1888	22	3,270	186,814,000	19	1,596	64,555,000
1889	22	3,803	99,664,000	25	2,930	137,815,000
1890	26	2,963	105,007,000	29	3,825	182,495,000
1891	26	2,159	84,479,000	21	3,223	169,069,000
1892	36	10,508	357,692,000	28	1,922	95,898,000
1893	74	29,340	1,781,046,000	25	1,613	79,924,000
1894	38	7,025	395,791,000	42	5,643	318,999,000
1895	31	4,089	369,075,000	52	12,831	761,791,000
1896	34	5,441	275,597,000	58	13,730	1,150,377,000
1897	18	1,537	92,909,000	42	6,675	517,680,000
1898	18	2,069	138,701,000	47	6,054	252,910,000
1899	10	1,019	52,285,000	32	4,294	267,534,000
1900	16	1,165	78,234,000	24	3,477	190,374,000
1901	4	73	1,627,000	17	1,139	85,808,000
1902	5	278	5,835,000	20	693	39,788,000
1903	9	229	18,823,000	13	555	15,885,000
1904	8	744	36,069,000	13	524	28,266,000
1905	10	3,593	$176,321,000	6	679	$20,307,000
1906	6	204	55,042,000	8	262	10,400,000
1907	7	317	13,585,000	6	114	13,777,000
1908	24	8,009	596,359,000	3	138	2,547,000
1909	5	859	78,095,000	12	2,629	250,033,000
1910	7	735	51,427,500	17	1,100	93,660,109
1911	5	2,606	210,606,882	13	1,386	40,741,543
1912	13	3,784	182,112,497	12	661	25,910,990
1913	17	9,020	477,780,820	6	1,159	86,163,850
1914	22	4,222	199,571,446	9	1,470	83,189,500
1915	12	20,143	1,070,808,628	11	3,914	285,258,782
1916	9	4,439	208,159,689	26	8,355	703,444,855
1917	19	2,486	61,169,962	20	10,963	557,846,348
1918	8	3,519	242,090,800	11	763	24,735,187
1919	7	244	11,886,779	8	459	15,479,587
1920	10	541	21,620,150	7	380	7,676,200
1921	14	1,744	63,872,113	11	4,173	306,123,942
1922	12	4,330	329,114,860	15	6,151	299,491,646
1923	10	2,218	87,913,581	8	637	14,622,900
1924	11	920	30,223,372	14	3,992	269,251,082
1925	6	11,368	680,422,080	6	638	9,965,000
1926	6	88	2,821,400	12	12,852	626,662,708
1927	6	924	45,236,674	5	142	4,254,000
1928	1	19	529,000	4	209	6,393,250
1929	3	634	30,981,391	5	562	20,715,065
1930	4	4,752	277,323,994	2	1,048	124,668,500
1931	19	5,195	432,151,526	2	102	993,860
1932	13	11,817	626,577,314	8	394	8,575,178
1933	18	21,222	1,229,678,183	2	298	16,133,000

among them several major systems. As startling as the 1933 total is, it becomes even more so when it is remembered that the intervention of the federal government, by extending its credit through the Reconstruction Finance Corporation, alone prevented conditions from becoming very much worse.

Table VIII—Railroads in the Hands of Receivers or Trustees on December 31, 1933

Road	Mileage operated	Mileage owned	Date of receivership or trusteeship	Funded debt outstanding	Capital stock outstanding	Total old company securities	Remarks
Akron, Canton & Youngstown	171	19	May 5, 1933	$3,550,000	$1,500,000	$5,170,000	
Ann Arbor	294	294	Dec. 4, 1931	9,164,341	7,250,000	17,196,498	
Apache Railway	72	72	Sept. 29, 1931	1,055,000	600,000	1,655,000	
Apalachicola Northern	99	99	May 28, 1932	2,000,000	1,000,000	3,000,000	
Boyne City, Gaylord & Alpena	92	92	Nov. 21, 1931	800,000	669,800	1,469,800	
California & Oregon Coast	15	15	Feb. 19, 1925	529,028	350,000	904,028	
Cape Girardeau Northern	13	104	Apr. 14, 1914	1,146,000	110,000	1,431,900	
Caro Northern	17	17	July 23, 1919	.....	.....	.....	
Central of Georgia	1,945	1,480	Dec. 19, 1932	53,722,000	20,000,000	77,922,000	
Chesterfield & Lancaster	33	32	Apr. 14, 1931	186,000 (a)	500,000	686,000	
Chicago & Eastern Illinois	939	821	Sept. 15, 1933	33,587,036	45,891,400	80,437,236	
Chicago, Attica & Southern	155	140	Aug. 4, 1931	441,200	2,002,700	2,443,900	
Chicago, Indianapolis & Louisville	647	618	Dec. 30, 1933	26,071,000	15,488,300	42,765,177	
Chicago, Springfield & St. Louis	87	79	Jan. 24, 1930	500,000	205,275	705,275	This road was sold at foreclosure sale on June 25, 1931, but the receiver is still operating the property.
*Coeur d'Alene & Pend d'Oreille	21	21	Aug. 31, 1933	544,000	544,000	1,088,000	
Colorado-Kansas	25	24	July 1, 1931	None	None		Obligations and indebtedness pursuant to Trustee's Sale of Foreclosure and Receivership, $25,170.57. Following trustee's foreclosure sale on Sept. 30, 1932, receiver was discharged and reappointed as receiver in operation of the property during the redemption period for the bondholders, and during reorganization period.
Cowlitz, Chehalis & Cascade	32	32	Mar. 7, 1932	800,883	425,000	1,225,883	
**East & West Coast	2 (b)		Feb. 2, 1931	624,333	250,000	889,333	
Elberton & Eastern	35	35	Dec. 30, 1932	392,950	200,000	592,950	Operation discontinued after Dec. 16, 1933.
Florida East Coast	839	834	Sept. 1, 1931	57,000,000	37,500,000	99,480,075	
**Florida, Western & Northern	233	233	Feb. 2, 1931	14,999,000	5,000	15,165,000	
Fonda, Johnstown & Gloversville	64	62	Apr. 20, 1933	6,218,000	3,000,000	9,280,500	
Fort Smith & Western	250	197	June 1, 1931	5,244,000	1,248,000	6,719,434	Capital stock represented by 62,400 shares of no par value.
Gainesville & Northwestern	36 (c)	34	Dec. 8, 1923	None	750,000	775,000	
Gainesville Midland	74	72	Feb. 15, 1921	949,285	550,000	1,499,285	See *Railway Age*, Jan. 5, 1929, p. 67
Georgia & Florida	465	421	Oct. 19, 1929	7,446,000	13,382,441	21,874,441	Capital stock includes 100,000 shares common of no par value.
**Georgia, Florida & Alabama	192	192	Nov. 7, 1931	1,750,000	2,010,678	4,110,678	Capital stock includes 10,000 shares common of no par value.
Georgia, Southwestern & Gulf	36	35	Jan. 2, 1933	76,800	14,700	91,500	
Gulf Coast Lines	1,901	1,667	July 1, 1933	53,535,000	15,000,000	70,139,000	
International-Great Northern	1,160	1,106	July 1, 1933	48,271,000	7,500,000	57,720,000	
Jacksonville & Havana	60 (d)	42	Feb. 1, 1930	300,000	160,810	460,810	
Louisiana Southern	64	64	Aug. 2, 1933	1,000,000	1,000,000	2,000,000	
Meridian & Bigbee River	30	30	July, 1933	500,000	300,000	800,000	
Minarets & Western	53	43	May 1, 1933	1,388,000	2,000,000	3,394,361.04	
Minneapolis & St. Louis	1,627	1,515	July 26, 1923	44,892,896	25,792,000	71,869,896	
Missouri & North Arkansas	365	335	May 5, 1927	3,500,000	3,000,000	7,200,000	
Missouri-Illinois	202	137	July 1, 1933	2,737,500	2,250,000	4,987,500	
Missouri Pacific	7,412	6,859	July 1, 1933	350,932,500	154,639,600	523,222,900	
Mobile & Ohio	1,202	913	June 3, 1932	32,169,500	6,016,800	44,222,399	
Nevada Copper Belt	41	41	Apr. 2, 1925	622,000	.....	624,000	
Norfolk Southern	933	790	July 27, 1932	15,401,000	16,000,000	31,640,400	
North & South	41	41	Aug. 1, 1924	None	None	5,627,222	Court order judgments $4,911.771.
***Northern Ohio	152	152	May 5, 1933	3,300,000	4,230,000	7,530,000	
Pittsburg, Shawmut & Northern	198	160	Aug. 1, 1905	14,655,600	15,000,000	31,380,030	
Pittsburgh & Susquehanna	18	18	Apr. 22, 1931	300,000	300,000	600,000	
Raleigh & Charleston	20	20	May 1, 1931	550,000	574,500	1,124,500	
Rio Grande Southern	174	174	Dec. 16, 1929	4,509,000	4,510,000	9,065,000	
Rock Island Lines	8,333	7,850	Nov. 22, 1933	310,532,885	128,909,212	470,325,097	
Rutland, Toluca & Northern	21	21	Mar. 16, 1931	225,000	97,000	322,000	
St. Louis-San Francisco	5,267	5,096	Oct. 1, 1933	268,173,767	114,591,091	403,711,858	This company went into receivership on Nov. 1, 1932.
Santa Fe, San Juan & Northern	57	32	Oct. 14, 1931	No Information Available			
Savannah & Atlanta	145	142	Mar. 4, 1921	3,365,000	2,250,000	6,115,000	
Seaboard Air Line	4,310	3,331 (e)	Dec. 23, 1930	134,981,327 (f)	85,110,662	248,017,389	
**Seaboard-All Florida	184	184	Feb. 2, 1931	17,881,667	2,500	18,003,167	
Shelby Northwestern	22	22	Sept. 15, 1932	300,000	25,000	325,000	
Sierra Railway Company of California	79	79	May 5, 1932	1,747,000	3,248,000	4,995,000	
Spokane International	164	139	Aug. 28, 1933	4,200,000	4,200,000	8,400,000	
Tallulah Falls Railway	57	57	June 24, 1923	1,519,000	323,400	1,852,400	The I. C. C. has authorized this company to abandon its entire line.
Tonopah & Goldfield	102	93	July 20, 1932	None	1,051,500	1,051,500	
Townsville	11			22,500	240,000	262,500	
Wabash	2,457	2,012	Dec. 1, 1931	122,472,326	138,120,700	293,279,409	
Waco, Beaumont, Trinity & Sabine	115	115	Feb. 8, 1930	330,000	1,113,000	1,503,000	
Wichita Northwestern	100	100	Nov. 10, 1922	381,750	1,690,000	2,116,750	
Wilmington, Brunswick & Southern	35	35	Mar. 17, 1933	183,750	165,000	348,750	
Wisconsin Central	1,158	1,030	Dec. 2, 1932	44,803,000	27,392,200	72,195,200	

* Leased to Spokane International.
** Leased to Seaboard Air Line.
*** Leased to Akron, Canton & Youngstown.
(a) Exclusive of $67,000 principal amount of Second mortgage 6 per cent Bonds matured Jan. 15, 1918.
(b) Side track mileage.
(c) Two miles operated under contract.
(d) This company has the right to operate over the Chicago, Burlington & Quincy between Jacksonville and Waverly, a distance of 17.95 miles.
(e) Includes 8.50 miles owned but not operated.
(f) Exclusive of pledged securities and exclusive of the following issues which became due on the dates indicated, no provision for the payment of such issues having been made up to the present time, viz:

Raleigh & Augusta Air Line First Mortgage Bonds Extended	Jan. 1, 1931	$1,000,000
Seaboard Air Line Railway Co. Three Year Secured Notes	Feb. 1, 1931	7,500,000
Seaboard & Roanoke First Mortgage Bonds Extended	July 1, 1931	2,500,000
Seaboard Air Line Ry. Atlanta-Birmingham First Mortgage Bonds	May 1, 1933	5,910,000
Miscellaneous obligations—due various dates		20,848

P. W. A. Loans for Maintenance and Equipment

$200,000,000 allotted, but difficulties encountered in making loans effective

By H. F. Lane
Washington Editor, Railway Age

AN important development of the year was the provision made in the National Industrial Recovery Act, passed in June, for a new series of loans to railroads from the $3,300,000,000 fund of the Public Works Administration for railroad maintenance and equipment, approved by the Interstate Commerce Commission as desirable for the improvement of transportation facilities. Whereas a large part of the loans from the Reconstruction Finance Corporation had been made for refunding purposes, or to meet interest and tax requirements, under a policy intended to avoid the disastrous effects on financial institutions which would follow a series of receiverships of important railroads, the plan for P. W. A. loans was to promote employment through the stimulus to capital goods industries which would be afforded by expenditures for purchases of new equipment, repairs to existing equipment, and the purchase and laying of rails and accessories.

$200,000,000 Allotted

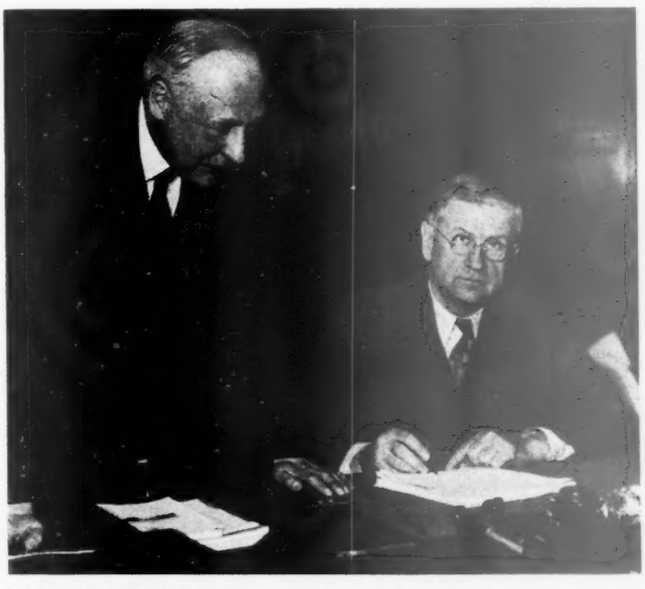
To date approximately $200,000,000 has been allotted by the P. W. A. for these purposes, including specific allotments to 21 railroads amounting to $156,607,000 and a general allotment of $51,000,000 for the purchase of rails and fastenings, which was later reduced to $41,000,000. The administration has announced a total of $214,607,000, but this figure includes some duplication between the general and the specific allotments for rails; the amount of the loan finally granted to the Pennsylvania was also reduced from $84,000,000 to $77,000,000. By the end of the year the $3,300,000,000 fund had been practically all allocated but additional sums will be made available as earlier allotments are cancelled or not taken up and it is expected that many additional loans to railroads will be made on applications which have been pending in the stage of preliminary negotiations.

Contracts for the Pennsylvania loan and those of the New Haven and Lehigh Valley were the only ones finally signed when this was written but several others had been approved by the Interstate Commerce Commission and were approaching a conclusion of the negotiations as to details. As a result prospects have been afforded for more orders for railroad equipment and specialties than have been in sight for a long time, affording opportunities for a large amount of additional employment in railroad shops as well as in those of the manufacturers and contractors. Partial estimates made in connection with the loans already allotted show a total of over 74,000,000 man-hours of direct employment in addition to the indirect employment afforded.

Although the railroads have been strongly urged by various representatives of the administration to take advantage of the opportunity offered, as a patriotic duty to aid in the recovery program as well as from the standpoint of long-range economy for themselves, the P. W. A. has not undertaken to loan any large sums to the railroads without requiring adequate security. Moreover, although it has offered long-term loans and favorable interest terms, 4 per cent with no interest for the first year, the labor restrictions in the law have imposed numerous conditions not attached to the R. F. C. loans which not only increase the cost of equipment to be purchased but have greatly delayed the negotiations and have made it difficult for manufacturers to quote prices. So far as rail purchases are concerned, the Administration brought about a temporary reduction in the base price from $40 to $36.375 a ton, but as to most things purchased by railroads the requirements of the N. R. A. codes, which have been made a condition of the loan contracts, have tended to increase prices and the delay in getting codes approved has greatly complicated the situation.

For a time the railroads displayed comparatively little interest in the possibilities for such loans. However, after urgent persuasion from administration sources, including several suggestions from Co-ordinator Eastman, and some negotiations regarding terms, a number of railroads began to file applications in November, after traffic and revenues had begun to show improvement.

In September President Roosevelt had announced a plan for making loans for the purchase of rails on con-



Public Works Administrator Harold L. Ickes Signing Contract Under Which P. W. A. Will Loan the Pennsylvania $77,000,000—Standing Is A. J. County, Vice-President of the P. R. R. in Charge of Finance and Corporate Relations

dition that the steel companies agree to a reduction in the price, and Co-ordinator Eastman was asked to canvass the roads as to the amounts they would be willing to purchase.

On November 2 the Public Works Administration extended what amounted to an invitation to the railroads to come forward by announcing that it had "allotted" $51,000,000 for the purchase of rails and fastenings and $84,000,000 for a loan to the Pennsylvania for the completion of its electrification work and for the construction of cars and locomotives "for the direct encouragement of heavy industries and in consummation of the Administration's plan for thus quickly aiding the movement of men from relief rolls to payrolls in industries that have curtailed employment." Both allotments were subject to completion of satisfactory contracts between the carriers involved and the Federal Administrator of Public Works, as well as the approval of the Interstate Commerce Commission as required by the law.

Transportation Loan Division Organized

Shortly afterward the administration organized a Transportation Loan Division, with Frank C. Wright, vice-president of the Bangor & Aroostook, as director. For a time the allotments merely meant the continuation of negotiations which had been in progress between representatives of the P. W. A. and of the railroads, the manufacturers of equipment and appliances, and the labor organizations, regarding terms. These involved not only the question of the security to be given by the railroads but also the labor conditions. On November 20, the P. W. A. announced a policy of making loans for repairing and rebuilding cars and locomotives, stating that progress had been made in discussions with railroad officials looking toward further loans for this purpose. On December 7 announcement was made of the first two specific allotments for this purpose, of $5,500,000 to the Lehigh Valley and the New York, New Haven & Hartford, and on December 9 allotments amounting to $36,307,500 were announced for the purchase of cars and locomotives by four railroads. These were followed by others for both maintenance and purchase of new equipment and on December 28 the first announcements were made of definite allotments to railroads for some of the rails that had been included in the tentative commitments sent to Mr. Eastman in October.

Terms of Loans

For the rail loans, after much discussion the P. W. A. offered a plan by which railroads would give their promissory notes for ten years, with interest at 4 per cent except for the first year, payable in eight instalments beginning with the third year. For loans for maintenance it has required collateral, and for the purchase of equipment it announced as its policy that it would buy the railroad equipment trust notes month by month in amounts that may be necessary, to run 15 years on freight equipment and 20 years on locomotives and passenger cars, at 4 per cent interest except for the first year. For the expenditures included in the Pennsylvania electrification program the loan is to run for 30 years.

Several weeks of negotiations were required before the contract with the Pennsylvania was finally signed on December 29 by Administrator Ickes and A. J. County, vice-president of the railroad. Approval of the expenditure by the Interstate Commerce Commission followed on January 15.

Difficulty Caused by Labor Provisions

The labor provisions in the law raised practical questions as to the weight to be given the words "so far as practicable and feasible" in connection with the 30-hour week requirement, but a general interpretation on this point had already been established as a precedent by the P. W. A. that the hours and wage rates provided for in the codes for various industries would be in compliance with this requirement and that where N. R. A. codes had not yet been adopted the provisions of the President's Re-Employment Agreement should govern. As to most of the industries concerned with railroad contracts the codes had not yet been adopted and the railroads are not under the N. R. A. It was therefore decided that as to labor employed directly by the railroads the wages, hours and working conditions should be governed by the applicable contracts entered into in accordance with the requirements of the railway labor act but that unskilled labor should not be paid less than $15 a week minimum required to be paid on projects being constructed under P. W. A. regulations. Such provisions were included in the Pennsylvania contract and in forms of contract for loans for rails and equipment drawn up by the P. W. A. legal department.

It was provided that in the event the code or agreement is violated by the vendor the railroad shall have the right to terminate the contract, or may be required to terminate it if it is notified of such violation by the government. The vendor is required to report to the government monthly the number of persons on the payrolls, the aggregate of the payrolls, and the man-hours worked, and the railroad is required to report to the Department of Labor monthly the names and addresses of all persons, firms and corporations with whom contracts are made.

Manufacturers of equipment also would be required to report their expenditures for materials, and provisions were included as to their contracts with sub-contractors, requiring compliance with the codes. The contract forms include provisions for eventual sale by the government of the railroad notes and equipment trust certificates and the railroads are required to agree to take reasonable steps to aid in such sale. It is also provided that the notes shall have the highest rank and order of security, lien and priority to which they may be entitled at law or in equity.

R. F. C. Loans

The number and amount of loans by the Reconstruction Finance Corporation to the railroads was greatly reduced in 1933 as compared with the year before. Up to the end of December the R. F. C. had authorized loans to railways amounting to $411,845,678, of which $394,094,258 had been actually disbursed to 67 railways and of this $57,014,636 had been repaid. At the close of 1932 the corporation had authorized 104 loans to 62 railways aggregating $337,435,093, of which $284,311,271 had been disbursed and $11,839,562 had been repaid, leaving a balance of $272,471,708. Only five companies that had not borrowed from the R. F. C. in 1932 did so in 1933, although many of the companies obtained additional sums, and five roads repaid in full.

The Interstate Commerce Commission in its annual report showed that it had approved applications for R. F. C. loans to 81 companies amounting to $436,405,523 up to the end of October, on applications from 145 carriers, of which 41 were not approved and 23 were dismissed, usually with the consent of the applicants. The interest rate on R. F. C. loans to railroads in 1932 was 6 per cent but this was reduced on January 1, 1933, to 5½ per cent, again on July 1 to 5 per cent, contingent upon agreements to comply with certain requirements as to salaries, etc., and again on November 1 for one year to 4 per cent.

Construction of East Approach to a Parallel Tunnel, Chesapeake & Ohio, Jerry's Run, Va.

Railway Construction Reaches Lowest Point Since Civil War

Only 24 miles of new lines completed during 1933, while other activities receded still further in year of record stagnation

By George E. Boyd,
Associate Editor, Railway Age

AT no time since the Civil War, and probably not since the first railway was built, has railway construction been so nearly stagnant as it was in 1933. In fact, on many roads, on some of which important construction projects have heretofore followed one another almost continuously for periods ranging up to three or four decades, or even longer, no construction of any character was in progress during the year. On others, only work of a minor character was being prosecuted, while on a few others, work on important projects that had been started previously was suspended, where this could be done without loss.

No type of improvement or class of work escaped the effect of the situation which confronted the railways at the beginning of the year, and which continued well into the summer. With the increase in traffic that began early in the summer and which has consistently continued to improve, the railways have preferred to apply available funds to maintenance rather than to construction, in an effort to halt the accumulation of deferred upkeep. For this reason, only a few construction projects were started during the year, and much of this work was in the nature of public improvements, such as grade-crossing elimination, bridges over inland waterways, etc.

On the other hand, a considerable amount of construction that was started prior to the beginning of 1933 has been brought to completion or continued with little abatement during the year. The Pennsylvania has continued work on a number of important projects and is preparing to prosecute them vigorously during 1934. The total amount involved in the construction projects on this road, including the Long Island, completed during the year or carried over into 1934, aggregates more than $182,000,000. Likewise, the New York Central has carried forward its West Side improvements in New York, the total cost of which, when completed, will be $175,000,000, at substantially the rate called for in its original schedule. In the same category, the Chesapeake & Ohio completed certain projects and continued to prosecute others, involving new tunnels, the enlargement and improvement of old tunnels, line changes and grade reductions through the Allegheny mountains. Because many of the older projects were completed during the year, and few new ones were started, the carry-over into the new year is abnormally small.

Despite the meager record for the year and the abnormally small carry-over at the end of the year, the outlook for a revival of construction is more encouraging than it has been for several years. The railways are not a finished product and never will be. Although

they had for years been spending vast sums for internal improvements and extensions, and for a decade prior to 1930 had spent an average of $750,000,000 a year on such improvements, the railway plant is still far from complete. Furthermore, obsolescence continues at substantially the same rate during periods of recession as during those of great activity. For this reason, as business and industry continue to revive, the effect of the obsolescence that has accrued to both equipment and fixed property during the last four years will become a powerful factor in bringing about a revival of railway construction. As business and industrial activities increase, there will develop a still more insistent demand than in the past for greater economies in railway operation. Again, the public is constantly demanding higher standards of service, which new forms of competition in transportation make it imperative that the railways provide. Obviously, these apparently opposing requirements can be met only by further improvements on a scale comparable to those of the last decade.

During the last four years, railway management has made changes and developed refinements in operating methods to an extent that would not have been considered possible as recently as at the beginning of this period. While these changes have resulted in marked economies, as traffic increases, additional construction of major importance will be required to make these newer methods effective.

Miles of New Line Completed in the United States Since 1893

1893	3,024	1914	1,532
1894	1,760	1915	933
1895	1,420	1916	1,098
1896	1,692	1917	979
1897	2,109	1918	721
1898	3,265	1919	686
1899	4,569	1920	314
1900	4,894	1921	475
1901	5,368	1922	324
1902	6,026	1923	427
1903	5,652	1924	570
1904	3,832	1925	644
1905	4,388	1926	1,005
1906	5,623	1927	779
1907	5,212	1928	1,025
1908	3,214	1929	666
1909	3,748	1930	513
1910	4,122	1931	748
1911	3,066	1932	163
1912	2,997	1933	24
1913	3,071		

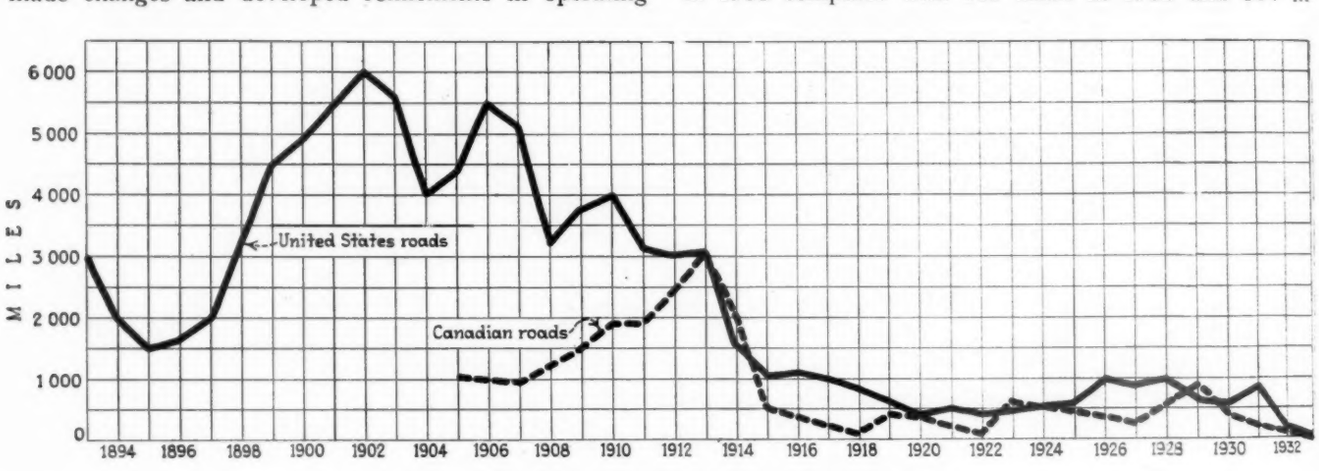
New Mileage Lowest Ever Recorded

For many years the mileage of new lines under construction or completed during the year has been regarded as an index of the construction activities of the railways as a whole. That it can be accepted as such is indicated by the fact that the new lines completed during the year aggregated only 24 miles, the smallest mileage of record for any year, and probably the lowest during the entire existence of the railways. Of this total, 11 miles were completed by the Virginian as the last section of its 44-mile Guyandot-river line between Elmore, W. Va., and Gilbert, which connects at the latter point with the Chesapeake & Ohio and the Norfolk & Western. Next in importance from a mileage standpoint was the line of the Southern Pacific between Olmos, Tex., and Quwmado Valley, 7.2 miles.

Miles of New Main Track Built in 1933

United States	Number of companies building	First track	Second track	Third track	Fourth track	Total
Michigan	1	0.42	...	...	...	0.42
New Jersey	1	0.20	...	...	...	0.20
New York	1	...	2.04	...	...	2.04
Ohio	1	2.23	...	...	...	2.23
Pennsylvania	1	3.12	2.94	...	...	6.06
Texas	1	7.20	...	...	...	7.20
Virginia	1	...	0.99	...	...	0.99
West Virginia	2	11.07	6.26	...	...	17.33
		24.24	12.23	...	...	36.47

This low record of 24 miles of new lines completed in 1933 compares with 163 miles in 1932 and 314 in 1920, the latter standing as the low record until 1932. It is in sharp contrast with the 6,026 miles that were placed in operation in 1902, the maximum for any one year, and the 5,652 miles that were completed in 1903.



New-Line Mileage Constructed in the United States and Canada

Only one uncompleted new line was under construction during the year, this being the Dotsero cutoff which is being built between Dotsero, Colo., and Orestod, 38.1 miles, by the Denver & Rio Grande Western, to provide a new short route between Denver, Colo., and Salt Lake City, Utah. The Atchison, Topeka & Santa Fe completed a spur from Carlsbad, N. M., to serve a potash industry about 20 miles to the northeast, but as it is not considered to be a main line, it has not been included in the mileage statistics.

Only two new-line projects were reported as being near the construction stage. The Northern Pacific has projected a line from Odair, Wash., to the site of the proposed Grand Coulee dam, 28.5 miles; and the Engineering division of the United States Army is preparing to construct a line from Wiota, Mont., south 14 miles, to the site of the Ft. Peck dam.

Twelve applications asking authority for the construction of 491 miles of road were filed with the Interstate Commerce Commission during the year ending October 31. During this year, eight certificates were issued, authorizing the construction of 32 miles of new lines. At the same time, five applications covering 24 miles were denied and three covering 11 miles were dismissed. Among the applications disposed of during

the year were several that were carried over from the previous year.

Since the effective date of the Transportation Act, the commission has authorized the construction of approximately 9,692 miles of new lines. Of this construction, projects involving 6,740 miles have been completed; others aggregating 1,442 miles have been abandoned or deferred; and the remainder, 1,510 miles, represents cases in which the specified completion periods have not yet expired. In considering these figures, it should be borne in mind that some of the certificates included in the foregoing statement have been issued to cover spur tracks, such as that of the Atchison, Topeka & Santa Fe at Carlsbad, N. M., previously mentioned, which are not intended to become main lines, while others have authorized extensions of electric interurban lines, neither of which are included in the mileage statistics of new lines constructed.

New Mileage in Canada and Mexico

Construction in Canada with respect to new lines was at a complete standstill. No new lines were completed in 1933 and none was under construction. This compares with the previous low of 121 miles in 1932, with 250 miles in 1931 and with 385 in 1930, as well as with 3,013 miles in 1913, in which year the largest mileage was completed since 1904, when the compilation of this record was started.

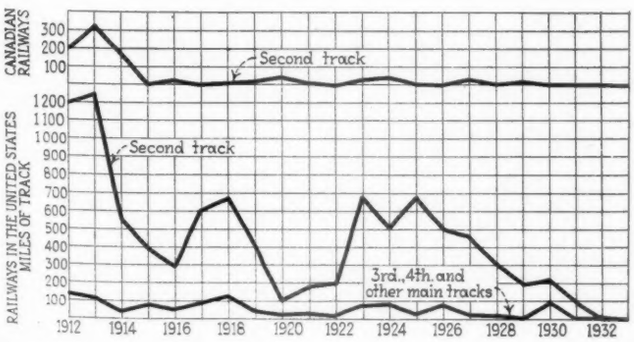
Miles of New Lines Completed in Canada Since 1904

1904	316	1919	433
1905	1,181	1920	305
1906	1,007	1921	252
1907	976	1922	145
1908	1,249	1923	655
1909	1,488	1924	615
1910	1,844	1925	414
1911	1,898	1926	335
1912	2,232	1927	310
1913	3,013	1928	723
1914	1,978	1929	841
1915	718	1930	385
1916	290	1931	250
1917	207	1932	121
1918	135	1933	0

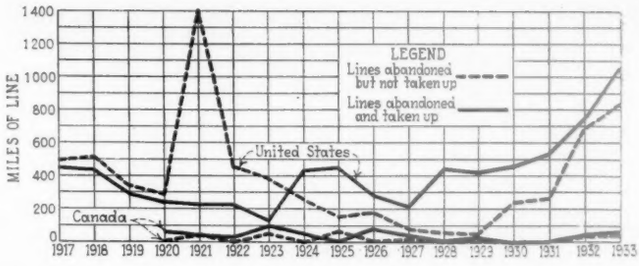
A similar situation with respect to new-line mileage existed in Mexico, although a main-track connection 2.18 miles long was built to replace a former connecting track between two lines of the National Railways, this connection being located between Tula and Pachuca in the state of Hidalgo. In other respects, the construction situation, as applied to both extensions and internal improvements remained the same as for several years past.

Multiple Track Mileage

Owing to developments in the signal field, which have resulted in a marked increase in the potential capacity of operated main tracks, since 1925, in which year approximately 700 miles of second, third and fourth track were placed in operation, there has been a decided trend



Multiple-Track Mileage Constructed in the United States and Canada



Mileage of Lines Abandoned in the United States and Canada

downward in the mileage of multiple main tracks constructed in successive years, which culminated, in 1932, in the completion of only 4.82 miles of such tracks. For several years subsequent to 1925 this downward movement persisted, even in the face of an increasing traffic which was the greatest in railway history.

Obviously, in view of the reduced volume of business which the railways were called upon to handle during 1932 and 1933, there has been practically no demand for additional main tracks, and those that have been built have been in connection with other improvements. As a result, 12.23 miles of second track, but no third or fourth track, was completed during the year. Approximately 7 miles of this was on the Chesapeake & Ohio, most of it being in connection with the construction of double-track or parallel tunnels. Three miles was placed in service by the Pennsylvania in connection with its Philadelphia terminal improvements, and 2 miles by the Delaware & Hudson incidental to grade-crossing eliminations at Whitehall, N. Y., and Albany.

Abandoned Mileage Sets New Record

In marked contrast with the almost complete suspension of new construction, there was an increase of 424 miles in lines abandoned in the United States, the total for the year being 1,876 miles, the largest aggregate abandonment ever recorded. This is 1,852 miles greater than the mileage of new lines completed during the year. It compares with 1,626 miles abandoned in 1921, the previous record. The largest single abandonment during the year was that of the line of the Southern Pacific between Cochise, Ariz., and Douglas, Kelton, Gleeson and Commonwealth, 72 miles. The San Joaquin & Eastern came next with 56 miles, between El Prado, Cal., and Cascade, and this was also the largest mileage involved in the abandonment of an entire railway; second in this latter respect was the Hartford & Eastern, which abandoned its entire line between Hartford, Wash., and Monte Cristo, 42 miles. Third place is occupied by the 54-mile line of the Norfolk & Western, between Lenore, W. Va., and Wayne.

Miles of Lines Abandoned in the United States Since 1917

1917	942	1926	457
1918	959	1927	283
1919	637	1928	512
1920	536	1929	475
1921	1,626	1930	694
1922	677	1931	795
1923	513	1932	1,452
1924	693	1933	1,876
1925	606		

Prior to 1917, the mileage of lines abandoned in the United States in any one year had been so nearly negligible that it had not been considered of sufficient importance to record. Beginning in that year, however, abandonment on a large scale, 942 miles, was recorded, and this trend has continued ever since, reaching its previous peak in 1921. Since 1917, a total of 13,711 miles of lines have been abandoned, while during the same period the new line construction has aggregated 10,072

Lines Abandoned in the United States, Canada and Mexico in 1933

United States	Lines abandoned and taken up Miles	Lines abandoned but not yet taken up Miles
Alaska		
Sutton to Chickaloon	18.27	
Arizona Southern		
Red Rock, Ariz., to Silverbell		21.00
Atchison, Topeka & Santa Fe		
McConnico, Ariz., to Chloride	23.41	
Cordes, Ariz., to Middleton	10.35	
Colony, Kan., to Yates Center		24.74
Henrietta, Mo., to North Lexington		3.11
Quenemo, Kan., to Osage City		19.45
Kramer, Cal., to Johannesburg		28.64
Baltimore & Ohio		
Placid, W. Va., to Owensport		21.00
Bangor & Aroostook		
Oldtown, Me., to South LaGrange	13.95	
Brookings & Peach Orchard		
Brookings, Ark., to Mollus	3.00	
Burlington-Rock Island		
Cleburne, Tex., to Hillsboro	29.89	
Central of Georgia		
Savannah, Ga., to Tybee	14.56	
Central of New Jersey		
Drifton Junction, Pa., to Scale Siding		2.37
Belford, N. J., to Navesink River		4.18
Chesapeake & Ohio		
Industrial Rayon Plant to Bess, Va	16.84	
Dillwyn, Va., to Rosney		4.43
Bartow, W. Va., to Winterburn		2.72
Logan, Ohio, to Monday Creek Junction		8.56
Chesapeake & Western		
Bridgewater, Va., and Mount Solon	8.84	
Chicago & North Western		
Mattoon, Wis., to Mattoon Junction		9.13
Chicago, Burlington & Quincy		
Osceola, Iowa, to Leon	18.24	
Atchison, Kan., to Rulo, Neb.	44.72	
Chicago, Milwaukee, St. Paul & Pacific		
Dexterville, Wis., to Lindsey	15.71	
Oconto Junction, Wis., to Oconto	10.16	
Bagley Junction, Wash., to Enumclaw		10.30
Bellvue, Iowa, to Cascade		35.72
Chicago, St. Paul, Minneapolis & Omaha		
Coburn, Neb., to Wynot	45.39	
Luverne, Minn., to Doon, Iowa	28.00	
Cleveland, Cincinnati, Chicago & St. Louis		
Coster, Ill., to Kankakee	21.06	
Colorado & Southern		
Parlins, Colo., to Quartz		18.12
Colorado & Wyoming		
Primero Junction, Colo., to Primero		2.64
Denver & Rio Grande Western		
Scofield, Utah, to Winter Quarters	3.05	
Sapinero, Colo., to Lake City		35.81
Duluth, South Shore & Atlantic		
Alston, Mich., to Simar		12.88
South Ishpeming, Mich., to Winthrop Junction		1.41
East Carolina		
Farmville, N. C., to Hookerton	11.00	
East Kentucky Southern		
Grayson, Ky., to Webbville	13.40	
Franklin & Pittsylvania		
Rocky Mount, Va., to Angle	21.00	
Gulf Coast Lines		
Jourdanton, Tex., to Christine	9.57	
Seadrift, Tex., to Pt. O'Connor	16.07	
Gulf, Colorado & Santa Fe		
Gary, Tex., to Grigsby		27.16
Hannibal Connecting		
At Hannibal, Mo	0.14	
Hartford Eastern		
Hartford, Wash., to Monte Cristo	42.12	
Illinois Central		
Jeffries, Ill., to Barlow		2.06
Illinois Terminal		
Litchfield, Ill., to Hillsboro		7.80
Georgetown, Ill., to Ridge Farm		5.01
Springfield, Ill., to Ridgely Junction		2.37
Jefferson & Northwestern		
Linden Junction, Tex., to Naples		29.00
LaCrosse & Southeastern		
LaCrosse, Wis., to Chaseburg	16.82	
Westby, Wis., to Viroqua	5.76	
Long Island		
Flushing Creek, L. I., N. Y., to Whitestone Landing	4.14	
Los Angeles & Salt Lake		
Rioco, Cal., to Long Beach		8.64
Louisville & Nashville		
Princeton Junction, Tenn., to Gracey, Ky	32.01	
McPhail, Ala., to Lakewood, Fla	2.85	
Ruffner Mine No. 2, Ala., to Trussville	9.42	
Graces, Ala., to Valley View		3.13
Prattville Junction, Ala., to Prattville		10.35
Valley View, Ala., to Hedona		1.42
Banner, Ala., to Granlin		0.91
Chenoa, Ky., to Grenada		2.06
Michigan Central		
Mount Forest, Mich., to Bently	4.70	
Barron Lake, Mich., to Niles		5.40
Minneapolis, St. Paul & Sault Ste. Marie		
Athens, Wis., to Goodrich, Wis	10.56	
Minnesota, Dakota & Western		
Bear River Junction, Minn., to Towle	1.74	

United States—*Continued*	Lines abandoned and taken up Miles	Lines abandoned but not yet taken up Miles
Missouri-Illinois		
Esther, Mo., to Flat River	1.11	
Missouri Pacific		
Crosno, Mo., to Belmont	3.93	
Helena Crossing, Ark., to Barton Crossing	8.50	
Lake Village, Ark., to Montrose	11.53	
Halley, Ark., to Dermott	5.92	
Fredona, Kan., to Peru Junction		39.52
Morehead & North Fork		
Lick Fork, Ky., to Redwine		20.22
Natches, Columbia & Mobile		
Norfield, Miss., to Oakvale	33.54	
New York Central		
Franklin, Pa., to Belmar		4.38
Norfolk & Western		
West Jefferson, N. C., to Elkland	19.43	
Lenore, W. Va., to Wayne	53.77	
Dingess branch	0.42	
At Lambert's Point, Va	0.16	
Northern Pacific		
Kangley Junction, Wash., to Bagley Junction		3.44
Northwestern Pacific		
Korblex, Cal., to Burn's Mill and River Camp	19.38	
Manor, Cal., to Point Reyes	17.51	
Duncan Mills, Cal., to Cazadero	7.04	
Willits, Cal., to Sherwood	14.52	
Ohio & Kentucky		
Cannel City, Ky., to Ohio and Kentucky Junction		25.78
Licking River, Ky., to Cannel City		12.81
Pennsylvania		
At Frazer, Pa	1.92	
At Mechanicsburg, Pa	0.35	
Kendrick branch	0.39	
Mapleton No. 3 branch	0.88	
Shadyside, Ohio, to Gravel Junction	1.76	
Deffenbaugh, Ohio, to Lawton	6.14	
Johnsonburg, Pa., to Clermont	18.40	
Converse, Ind., to Matthews	25.66	
East Brady, Pa., to Sarah Furnace		2.31
Schoonmaker branch		0.50
Mahoning branch		1.08
Blue Ash, Ohio, to Montgomery		1.35
Pennsylvania-Reading Seashore Lines		
Wildwood Junction, N. J., to Wildwood	6.60	
Sea Isle Junction, N. J., to Sea Isle City		4.70
Woodbine, N. J., to Cape May		21.10
Winslow Junction, N. J., to Pleasantville		26.00
Pere Marquette		
Mears, Mich., to Pentwater	7.20	
Haynor, Mich., to Stanton	19.46	
Pittsburgh, Shawmut & Northern		
Marvindale, Pa., to Hazelhurst	2.47	
Raleigh & Charleston		
Lumberton, N. C., to Lake View, S. C	22.67	
Reading		
In the Borough of Minersville, Pa	0.28	
St. Louis-San Francisco		
Wardwell, Mo., to Fraily		4.50
Yukon, Mo., to Deering Junction		4.00
McDougal, Ark., to Tipperary		8.90
Kiersey, Okla., to Texas Junction	9.24	
St. Louis Southwestern		
Prestridge, Tex., to White City		30.06
San Joaquin & Eastern		
El Prado, Cal., to Cascade		56.36
Savannah & Statesboro		
Statesboro, Ga., to Cuyler	32.00	
Seaboard Air Line		
Near Dunnellan, Fla	0.44	
St. Marks Junction, Fla., to Leontan	20.81	
Manatee, Fla., to Arcadia		45.65
Curtis, Fla., to Wannee		2.61
Southern Pacific		
Walling, Ore., to Willamette	7.11	
Cochise, Ariz., to Douglas, Kelton, Gleeson and Commonwealth	71.75	
Shiner Junction, Tex., to Gonzales	19.50	
At Berkeley, Cal		5.04
At Oakland, Cal		2.52
Lenora, La., to Sunrise		35.94
Greenville, Tex., to Commerce		14.08
Nome, Tex., to Sour Lake		8.29
Spokane, Portland & Seattle		
Gray, Ore., to Corvallas		5.20
Stanley, Merril & Philips		
Polley, Wis., to Walrath		25.00
Susquehanna River & Western		
Blain, Pa., to New Germantown	4.00	
Tabor & Northern		
Tabor, Iowa, to Malvern	8.79	
Tennessee Central		
Campbell Junction, Tenn., to Isoline		7.80
Tonapah & Tidewater		
Ludlow, Cal., to Crucero		26.00
Trinity Valley & Northern		
Dayton, Tex., to Fullerton	5.20	
Wabash		
Excelsior Springs Junction, Mo., to Excelsior Springs		8.72
White River		
Rochester, Vt., to Bethel	19.34	

Lines Abandoned in the United States, Canada and Mexico in 1933

United States—*Continued*	Lines abandoned and taken up Miles	Lines abandoned but not yet taken up Miles
Wichita Northwestern		
At Kinsley, Kan.		0.54
Woodstock		
Woodstock, Vt., to White River Junction	13.88	
Total	1,049.74	825.92
Canada		
Canadian National		
At Norwich Junction, Ont.	0.26	
Farnham, Que., to Ste. Brigdie	4.68	
North Yard, Regina, Sask., to Ardmore	2.02	
Steveville, Alta., to south of Wardlow	3.80	
At Fort William, Ont.		4.30
Strathcona, Man., to end of Dundee branch		2.70
At Carruthers, Sask.		2.28
At Barlow, Alta.		1.24
Cache Lake, Ont., to Algonquin Park		1.48
Simcoe Junction to Brandy Creek		7.53

Canada—*Continued*	Lines abandoned and taken up Miles	Lines abandoned but not yet taken up Miles
Souterville, Ont., to Kingscourt		3.27
At Montreal, P. Q.		0.66
Canadian Pacific		
Bolton, Ont., to Melville	17.30	
Burketon, Ont., to Lindsay	21.16	
Roberval & Saguenay		
Laterriere Junction, P. Q., to Laterriere		6.50
La Brosse Junction, P. Q., to Chicoutimi Le Bassin		3.10
Total	49.22	33.06
Mexico		
Mexican		
Pachuca, Hidalgo, to Ixmiquilpan		52.00
National Railways of Mexico		
Tula, Hidalgo, to Pachuca	2.21	
Mexico, D. F. (Villa G. A. Madero), to El Rey	33.26	
Total	35.47	52.00

miles, leaving a net decrease for the period of 3,660 miles of main lines.

During the year ending October 31, 1933, a total of 153 applications to abandon lines aggregating 3,263 miles were filed with the Interstate Commerce Commission. During this year, the commission authorized the abandonment of 129 lines aggregating 2,404 miles and denied two applications involving 34 miles; four other applications covering 65 miles were dismissed.

Prior to 1932, abandonments in both Canada and Mexico had also been negligible or nearly so. In 1932, however, the Canadian roads abandoned permanently 81 miles and discontinued operation on 119 miles, with the prospect that most of the latter mileage would be abandoned permanently, a fact which has since materialized in a number of cases. During 1933, there was a still further abandonment of 82 miles, all of which was permanent.

In Mexico, the abandonments occurring in 1932, aggregating 57 miles, were all on the National Railways. In 1933, the National Railways abandoned 35 more miles of lines and the Mexican 52 miles, a total of 87 miles.

Railway Construction in the United States

Alaska

Important Work Undertaken: Improvements and reconditioning projects at various points on system, $225,000 (completed).

Alton & Southern

Important Work Undertaken: Replacement of dock facilities at Fox terminal, East St. Louis, Ill., with larger and more modern structures and mechanical equipment, $166,000 (67 per cent completed).

Atchison, Topeka & Santa Fe

Important Work Undertaken: Renewal of Ashland Avenue subway, Chicago, (50 per cent completed). Track elevation and new station facilities, Oklahoma City, Okla. (80 per cent completed). Construction of spur, Carlsbad, N. M., northeast 19.98 miles to serve potash industry (completed).

Baltimore & Ohio

Important Work Undertaken: Change of line and elevation of tracks through South Philadelphia, Pa., B. & O. proportion $4,400,000 (89 per cent completed—work suspended temporarily). Reconstruction of tracks to provide a head-on connection for traffic between Potomac yard and Brunswick, Hyattsville, Md., $220,000 (10 per cent completed—work suspended temporarily). Construction of freight track and team tracks, Silver Springs, Md., $304,515 (30 per cent completed—work suspended temporarily). Construction of enlarged passenger, freight and yard facilities at new location, Johnstown, Pa., $365,000 (30 per cent completed—work suspended temporarily). Elimination of grade crossings, Witmer, Pa., to Mt. Royal, $685,000 (completed). Track elevation between Second street and the Miami river, Dayton, Ohio, joint with other roads, B. & O. proportion $2,671,600 (completed). Elimination of grade crossing, Blaine, Ohio, B. & O. proportion $105,000 (98 per cent completed). Elimination of grade crossing, Joliet road, McCook, Ill., $120,000 (40 per cent completed). New connection between Toledo and St. Louis divisions, Winton place, Cincinnati, Ohio, in connection with Cincinnati Union Terminal, $513,000 (10 per cent completed—work suspended temporarily). Changes in tracks in connection with new union terminal, Cincinnati, Ohio, $787,000 (55 per cent completed—work suspended temporarily). Construction of third and fourth tracks and separation of grades, Clifton and Mitchell avenues, Cincinnati, Ohio, $2,420,000 (20 per cent completed—work on grade separation suspended temporarily).

(Staten Island Rapid Transit): Elimination of grade crossings, Grassmere to Dongan Hills, Staten Island, N. Y., $1,500,000 (63 per cent completed).

Boston & Maine

Important Work Undertaken: Elimination of Hubb's and Dyer's grade crossings, Elnora, N. Y., $125,500 (work started). Filling timber trestle, Boston, Mass., $125,000 (65 per cent completed). Installation of remote-control switches, simplification of track arrangement at West Cambridge and installation of color-light signals between Boston, Mass., and Waltham, $150,800 (completed).

Canadian National (Lines in U. S.)

First Track: At Muskegon dock, Muskegon, Mich., 0.42.

Central of New Jersey

Important Work Undertaken: Widening subway at Spring street, Elizabeth, N. J., to accommodate state highway, railway's proportion $155,000 (5 per cent completed). Construction of 3-span deck girder bridge with ballasted concrete floor, to replace concrete arch over Morris canal and provide overcrossing for new state highway, $125,000 (preliminary work under way). Raising and rebuilding Bridge 200 over main line of Pennsylvania in connection with the Pennsylvania electrification, Newark, N. J., $147,000 (completed).

Chesapeake & Ohio

Second Track: Jerry's Run, Va., to East Alleghany, 0.99 miles. At Prince, W. Va., 0.81 miles. At Hilldale, W. Va., 1.57 miles. At Rockland, W. Va., 0.33 miles. Cotton Hill, W. Va., to Gauley, 2.62 miles. West Hamlin, W. Va., to W. H. Cabin, 0.93 miles.

Important Work Undertaken: Enlargement anl relining Little Bend tunnel, Hilldale, W. Va., $349,000 (completed). Line revision around Blue Hole tunnel construction of second track and conversion of Pope's Nose tunnel into an open cut, Cotton Hill, W. Va., to Gauley, $1,156,000 (completed). Reconstruction of part of bridge No. 11 over Mill creek, Cincinnati, Ohio, $153,500 (completed). Enlargement and relining of Lakes tunnel, Backbone, Va., $407,000 (completed). Construction of new single-track tunnel parallel to Lewis tunnel, Jerry's Run, Va., $1,461,000 (completed). Enlargement and relining of Kelly's tunnel, Jerry's Run, Va., $190,000 (completed). Construction of new single-track tunnel parallel to Alleghany tunnel and lining part of old tunnel, Alleghany, Va., $1,660,000 (completed). Construction of new double-track tunnel at Second creek, including line revision and new bridge over Greenbriar river, Rockland, W. Va., $1,148,000 (completed). Construction of new single track tunnel at Mann's tunnel, Ft. Spring, W. Va., $416,500 (completed). Construction of new single-track tunnel parallel to Big Bend tunnel, Talcott, W. Va., $2,471,000 (completed). Enlargement of Stretcher's Neck tunnel for double track, revision of grade and construction of second track, Prince, W. Va., $1,124,000 (completed). Construction of overhead crossing at Winchester avenue, Ashland, Ky., $128,900 (completed). Construction of overhead highway bridge at Walbridge, Ohio, $322,987 (completed).

Chicago & North Western

Important Work Undertaken: Grade-crossing elimination, U. S. highway No. 2, Powers, Mich. (10 per cent completed). Construction of subway to eliminate grade crossing, Brown Deer road, Fox Point, Wis. (completed). Construction of double-track subway to eliminate grade crossing with state highway No. 57, Milwaukee, Wis. (completed). Construction of three-track bridge to eliminate grade crossing with state highway No. 58, Des Plaines, Ill. (25 per cent completed).

Chicago, Burlington & Quincy

Important Work Undertaken: Construction of through truss lift span over Illinois river, Oglesby, Ill., $287,672 (completed). Construction of through truss lift span over Illinois river, Ottawa, Ill., $115,916 (completed).

Chicago, Milwaukee, St. Paul & Pacific

Important Work Undertaken: Track elevation, 2.65 miles, track depression, 2 miles, eliminating 14 crossings at grade between Clark street

and North Milwaukee; reduction of grades from 1.1 per cent to 0.65 per cent; construction of two new freight yards to hold 1,700 cars, Milwaukee, Wis., $4,800,000 (95 per cent completed). Track elevation between Church and Isabella streets, Evanston, Ill., 1.5 miles, $2,000,000 (93 per cent completed—work suspended temporarily).

Chicago, Rock Island & Pacific

Important Work Undertaken: Reconstruction of train shed, LaSalle station, Chicago, joint with N. Y. C., total cost $300,000 (40 per cent completed).

Cincinnati Union Terminal

Important Work Undertaken: Construction of union passenger terminal, Cincinnati, Ohio, $41,000,000 (completed).

Delaware & Hudson

Second Track: At Albany, N. Y., 0.52 miles. At Whitehall, N. Y., 1.06 miles.

Important Work Undertaken: Separation of grades at eight street crossings, Albany, N. Y., $1,000,000 (80 per cent completed). Separation of grades at four streets, Whitehall, N. Y., $800,000 (85 per cent completed). Elimination of grade crossing at Main street, Unadilla, N. Y., $148,000 (to be completed June 1, 1934).

Delaware, Lackawanna & Western

Important Work Undertaken: Remodeling and enlarging power plant, including boilers, stokers and power plant machinery, Hoboken, N. J., (completed). Elimination of Bridge street grade crossing, Vestal, N. Y., (50 per cent completed). Elimination of grade crossing, Violet avenue, Cheektowaga, N. Y., (60 per cent completed).

Denver & Rio Grande Western

Important Work Undertaken: (Denver & Salt Lake Western) Construction of new line, Dotsero, Colo., to Orestod, 38.1 miles, $3,850,000 (85 per cent completed).

Elgin, Joliet & Eastern

Important Work Undertaken: Conversion of one fixed span over Illinois deep waterway to a lift span, Bridge 552, Devine, Ill. (completed). Construction of lift span over Illinois deep waterway, bridge No. 198, Joliet, Ill. (95 per cent completed).

Erie

Important Work Undertaken: Construction of passenger platform and installation of drainage system, Westwood, N. J. (completed). Elimination of grade crossing, state route No. 2, Rochelle Park, N. J. (completed). Construction of viaduct to eliminate grade crossing, state route No. 6, Ridgefield Park, N. J. (completed). Elimination of Old Island road grade crossing, state route No. 2, Ramsey, N. J. (completed). Construction of subway to eliminate grade crossing, McClure-Oquaga Lake road, Oquaga, N. Y. (completed). Construction of viaduct to eliminate grade crossing, Stillwater highway, Forest City, Pa. (completed). Subway to eliminate grade crossing, Oak Hill avenue, Endicott, N. Y. (59 per cent completed). Track elevation to eliminate 15 grade crossings, Elmira, N. Y. (25 per cent completed). Construction of produce terminal warehouse, Elmira, N. Y. (completed). Construction of viaduct to eliminate grade crossing, Sawyer's highway, Owego, N. Y. (completed). Construction of passenger station and mail and baggage facilities, Jamestown, N. Y. (completed). Construction of viaduct to eliminate grade crossing, Horton's highway, Tioga Center, N. Y. (completed). Construction of viaduct to eliminate grade crossing, Gavigan's highway, Erwins, N. Y. (96 per cent completed). Wildwood Avenue grade crossing elimination. Salamanca, N. Y. (completed). Construction of concrete culvert and railway embankment, Palmer, Ind. (completed). Construction of coal pockets and outside coal storage, Rochester, N. Y. (completed).

Illinois Central

Important Work Undertaken: Replacing 282-ft. swing draw span and one fixed span over Salt river with three fixed spans, West Point, Ky., $200,000 (completed). Replacing draw span and two fixed spans by fixed spans with sheer boom to provide wider channel, over Illinois river, LaSalle, Ill., $431,000 (completed). Lining tunnel No. 3 with concrete, Reevesville, Ill., $110,000 (70 per cent completed).

Kansas City Terminal

Important Work Undertaken: Enlargement of sub-basement, and installation of mail-handling conveyor system and new elevators, to improve mail-handling facilities, Union station, Kansas City, Mo., $525,000 (completed).

Lehigh Valley

Important Work Undertaken: Elimination of grade crossings, Van Etten, N. Y. (completed). Elimination of grade crossing Horton's road, Tioga Center, N. Y. (completed). Elimination of Main street grade crossing, Manchester, N. Y. (70 per cent completed).

Long Island

Important Work Undertaken: Track elevation to eliminate nine grade crossings, Valley Stream, L. I., N. Y., $3,000,000 (completed). Grade crossing elimination, new Interborough Parkway, Forest Park, Glendale, L. I., N. Y., $120,000 (2 per cent completed).

Louisville & Nashville

Important Work Undertaken: Track elevation to eliminate four grade crossings, rearrangement of tracks, buildings, signals, etc., Birmingham, Ala., $4,000,000 (completed). New bridge 9,882 ft. long over Ohio river, including undercrossings at four streets, Henderson, Ky., $3,748,000 (completed).

Missouri-Kansas-Texas

Important Work Undertaken: Construction of undergrade crossing Lamar-McKinney streets, Dallas, Tex., $200,000 (completed).

Missouri Pacific

Important Work Undertaken: Reconstruction of south approach to bridge No. 87, Yancopin, Ark., $114,000 (40 per cent completed). Reconstruction of bridge No. 148, Myrtle, Ark., $100,000 (98 per cent completed). Reconstruction of bridge No. 142, Myrtle, Ark., $115,600 (50 per cent completed). Replacing bridge No. 145 with concrete culvert and embankment (65 per cent completed). Reconstruction of south approach to bridge No. 83, Benzal, Ark., $182,000 (10 per cent completed).

New Orleans Public Belt

Important Work Undertaken: Construction of a combined highway and double-track bridge 4.35 miles long over the Mississippi river, together with the necessary trackage and connections, New Orleans, La., $14,000,000 (20 per cent completed).

New York Central

Important Work Undertaken: Construction of new freight station, Charlton to Clarkson streets, St. John's Park, New York City, $6,500,000 (completed). Elevated track structure, Clarkson street to West Thirtieth street, New York, $3,800,000 (95 per cent completed). Elevated loop-track structure around Thirtieth street yard, $1,500,000 (completed). Alteration to piers and construction of bulkhead, Sixtieth Street yard, New York, $500,000 (completed). Relocation of city sewers from Thirty-third street to Fifty-ninth street, New York, $898,000 (98 per cent completed). Construction of warehouse and cold-storage building 802-16 Washington street, New York, $400,000 (60 per cent completed). Construction of undercrossing at East 233rd street, New York, $349,000 (completed). Facilities and equipment in parcel post building, West Thirtieth street and Tenth avenue, New York, $178,000 (completed).

Track and signal changes, Ossining to Oscawanna, N. Y., $900,000 (40 per cent completed). Construction of remote controlled, 3000-kw. mercury-arc rectifier substation, North station, White Plains, N. Y., $135,000 (completed). Consolidation and purchase of electric service, Weehawken, N. J., $105,000 (5 per cent completed). Replacing boilers in power house, West Albany, N. Y., $207,250 (completed). Reconstruction of bridge No. 57-A, Corning, N. Y., $290,200 (90 per cent completed). Syracuse Junction branch and First Ward branch connections, grade crossing elimination project, Syracuse, N. Y., $186,103 (80 per cent completed). Reconstruction of trainshed, LaSalle Street station, Chicago, joint with C. R. I. & P., N. Y. C. share, $146,000 (35 per cent completed).

(Cleveland, Cincinnati, Chicago & St. Louis) Terminal improvements, additional yards, engine terminal, revision of alinement, grade separation and electrification of westerly approach to Cleveland Union terminal, Cleveland, Ohio, $6,750,000 (completed). Track elevation to eliminate grade crossings at three streets, Carthage, Cincinnati, Ohio, $1,357,000 (5 per cent completed).

New York, New Haven & Hartford

Important Work Undertaken: Construction of concrete and steel viaduct to eliminate grade crossing, Modena, N. Y., $117,000 (completed). Elimination of grade crossing and improved station facilities, Quincy, Mass., $705,800 (41 per cent completed—work deferred temporarily). Elimination of Main street grade crossing and changes in freight facilities, Thomaston, Conn., $187,000 (completed). Track changes and signal installation, Braintree, Mass., to Middleboro, $224,300 (4 per cent completed). New steam generating units in power plant, Cos Cob, Conn., $520,000 (10 per cent completed).

Northern Pacific

New Line Projected: Odair, Wash., to Grand Coulee dam site, 28.5 miles.

Pennsylvania

First Track: At Philadelphia, Pa., 3.12 miles. Norwood Heights, Ohio, to East Norwood, 1.71 miles. At Red Bank, 0.52 miles.

Second Track: At Philadelphia, Pa., 2.94 miles.

Important Work Undertaken: Track changes at Pennsylvania station, including extension of platforms, relocation of columns and of underground facilities, and additional mail-handling facilities, in connection with extension of post office, New York (completed). New station and express building, three bridges carrying six tracks over Passaic river, additional tracks retaining walls, etc., in connection with track elevation, Newark, N. J., (20 per cent completed). Elimination of grade crossings, Plainfield avenue, Stelton, N. J. (completed). Construction of concrete and steel viaduct, 1,300 ft. long, to eliminate grade crossing, state highway, Route 29, Newark, N. J. (95 per cent completed). Construction of viaduct over tracks and South river, to eliminate grade crossing with state highway, Route S-28, Old Bridge, N. J. (completed). Electrification of main line between New Brunswick, N. J., and Trenton (completed). Electrification of freight lines, Greenville, Waverly, Passaic, Harsimus, Meadows and South Amboy branches (10 per cent completed). Through power supply, Trenton, N. J., to Liddonfield, Pa. (completed).

Relocation and elevation of tracks, Norristown, Pa. (85 per cent completed). Change of line, Elkton, Md. (40 per cent completed). Through power supply, Liddonfield, Pa., to Wilmington, Del. (67 per cent completed). Electrification of main line, Wilmington, Del., to Washington, D. C. (25 per cent completed). Philadelphia terminal improvements, Philadelphia, Pa. (85 per cent completed). New line and other improvements through Baltimore, Md. (22 per cent completed).

River to rail transfer facilities, Baden, Pa. (25 per cent completed—work suspended temporarily). Grade crossing elimination, Rochester, Pa. (completed). Elimination of grade crossing, Main street, Niles, Ohio, (completed). Change of line in connection with Pymatuning reservoir project, Linesville, Pa. (80 per cent completed). Mail-handling tunnel and tracks to serve new post office, Pittsburgh, Pa. (75 per cent completed). Elimination of two grade crossings, Springbrook, N. Y. (80 per cent completed). Reconstruction of Bridge 2.42, Pittsburgh, Pa. (completed).

Construction of connection between Pennsylvania and Baltimore & Ohio, East Norwood, Ohio, and a main-track connection at Red Bank, Ohio, including elimination of four grade crossings (completed). Track elevation, Englewood Connecting Railway, Chicago (60 per cent completed).

The approximate cost of the foregoing projects aggregates $174,635,500.

(Pennsylvania-Reading Seashore Line). *First Track:* In connection with other improvements shown, 0.20 miles.

Important Work Undertaken: Physical connection between West Jersey & Seashore and former Atlantic City Railroad, and new interlocking, Winslow, N. J. (50 per cent completed). Physical connections between same lines, Camden, N. J. (70 per cent completed). Consolidation of passenger terminals of these lines, construction of new station and elimination of grade crossings, Atlantic City, N. J. (10 per cent completed).

The approximate aggregate cost of the foregoing projects amounts to $4,315,000.

Reading

Important Work Undertaken: Construction of new passenger and freight stations, platforms and shelters, including a track depression to reduce grades, Chestnut Hill, Pa., $209,000 (completed). Track elevation from south of Wister street to Haines street and from Sedgwick street to Graver's Lane; new passenger and freight stations and incidental facilities and new passenger station at Wister; Chestnut Hill grade-crossing elimination, Philadelphia, Pa., to Germantown, $3,023,315 (completed). Electrification of Philadelphia suburban lines, Wayne Junction to Chestnut Hill, 4.8 miles, $375,000 (completed). Reconstruction of bridge No. 146.67

(Continued on page 150)

Another Year of Undermaintenance

Way and equipment expenditures less in 1933 than in 1932, but trend was upward during second half

NOTWITHSTANDING the upward turn in traffic and earnings which took place during the late spring and summer of 1933 and which produced a considerably greater net railway operating income for the year than was realized during 1932, annual expenditures for maintenance of way and structures and maintenance of equipment reached new lows for the depression during 1933.

Deferred Equipment Maintenance Still Accumulates

In keeping with the smaller total of equipment utilization in 1933, as compared with 1932, less money was spent and fewer hours of labor were applied on repairs to cars and locomotives in 1933 than were applied in 1932. This result for the year as a whole, however, does not indicate the trend in maintenance activities, which were definitely upward during the late spring and summer and which have shown a relatively small recession during the last quarter of the year. But notwithstanding this upturn in shop activity deferred maintenance has continued to accumulate throughout the year, although the rate of accumulation declined during the summer. The railroads thus have entered the year 1934 with one of the lowest reserves of serviceable motive power and rolling stock in their history.

Trend in Maintenance of Equipment 1932 and 1933

	Total M. of E. expense (000)		Mach. and B. M. hours (000)		Carmen C and D hours (000)	
	1932	1933	1932	1933	1932	1933
January	57,624	47,592	8,515	7,419	8,306	6,871
February	54,473	44,861	8,332	6,635	7,935	6,035
March	57,280	45,751	9,116	7,002	8,541	6,467
April	54,211	45,244	8,409	6,681	7,928	6,109
May	52,293	46,936	8,101	7,149	7,674	6,595
June	49,728	48,134	7,560	7,298	7,273	6,869
July	47,983	51,671	6,961	7,788	6,949	7,555
August	47,163	55,531	7,095	8,761	7,089	8,265
September	47,509	54,195	6,980	8,343	6,905	7,917
October	50,544	55,338	7,682	8,808	7,445	8,147
November	49,372	52,743	7,647	....	7,288	....
December	50,985	.....	7,523	....	7,166	....

A year ago an attempt was made to show the trend of locomotive conditions by a comparison of freight and passenger locomotive-miles run out in service with the locomotive-miles restored, using the number of hours of machinists and boilermakers time paid for monthly as an index of the extent to which repairs were being made. On the same chart were also shown the trends in the number of locomotives on line, the number of serviceable locomotives, and the number of locomotives actively in service. This chart, brought up to as near the end of 1933 as the available statistical data will permit, reflects the steadily increasing activity which took place in the shops during the summer and into the fall which was required by the increasing locomotive utilization, a check in the increase in the number of

Expenditures for Maintenance of Way and Structures Class I Railroads

1911†	$248,004,080	1922	$728,663,534
1912†	348,470,704	1923	813,688,760
1913†	406,042,529	1924	792,678,023
1914†	403,682,593	1925	816,443,205
1915†	364,004,178	1926	866,819,365
1916†	404,514,144	1927	868,581,432
1916	421,775,812	1928	837,905,747
1917	442,109,862	1929	855,354,867
1918	649,794,953	1930	705,470,940
1919	772,186,045	1931	530,612,890
1920	1,032,540,381	1932	351,179,041
1921	756,413,690	1933*	325,000,000

† Year ending June 30, all others calendar year.
* Last two months estimated.

Expenditures for Maintenance of Way and Structures by Months Class I Railroads*

	1931 (000 omitted)	1932 (000 omitted)	Per Cent Change	1932 (000 omitted)	1933 (000 omitted)	Per Cent Change
January	$43,737	$29,979	−31	$29,979	$22,655	−25
February	41,392	28,466	−30	28,466	21,596	−25
March	46,734	30,760	−34	30,760	22,592	−28
April	51,441	32,505	−37	32,505	24,440	−25
May	52,589	33,951	−36	33,951	27,323	−20
June	51,962	32,713	−37	32,713	28,805	−12
July	50,075	29,449	−41	29,449	30,401	+ 2
August	47,099	28,990	−38	28,990	32,769	+10
September	43,256	28,059	−35	28,059	31,597	+11
October	42,004	28,972	−30	28,972	30,961	+ 7
November	35,233	26,233	−26			
December	30,353	21,365	−30			

* Figures for 1931 include Class I terminal companies, which increase the totals about one per cent.

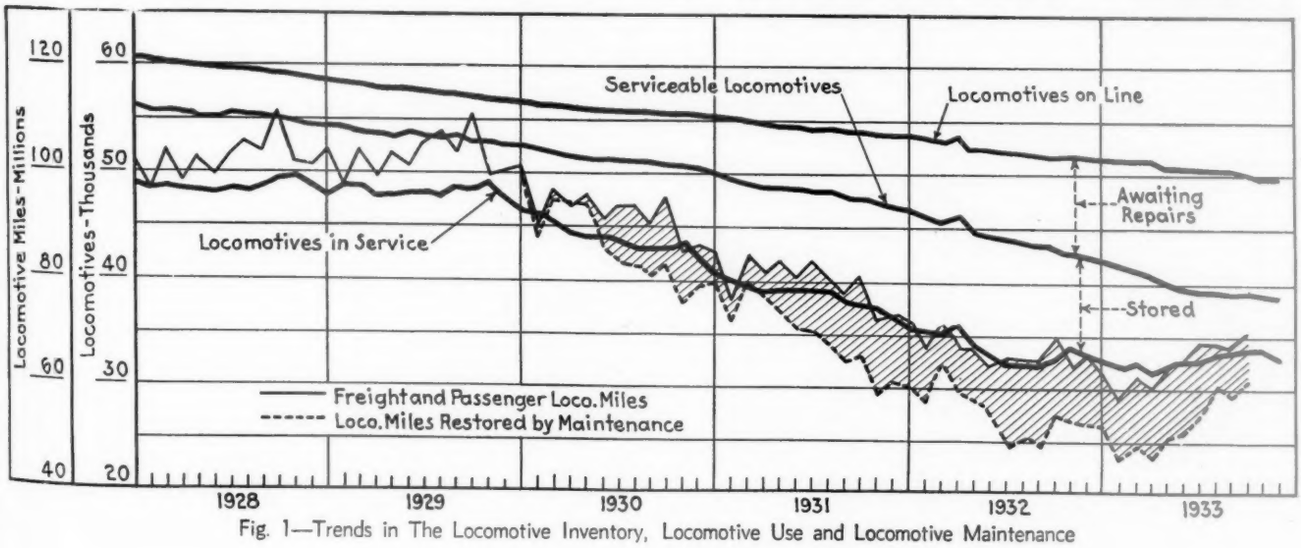


Fig. 1—Trends in The Locomotive Inventory, Locomotive Use and Locomotive Maintenance

locomotives awaiting repairs—an increase which had been practically continuous for the preceding three years—and the rapid shrinkage of the supply of locomotives stored serviceable, which took place from May to November of last year. It is interesting to note that the on into 1933, with the exception of a slight check at the turn of the year reaching a maximum in August which declined slightly during September and October to remain constant for the remainder of the year. The percentage of bad-order cars on line reached a maximum of 15.4 during July and August, dropping back to 14.8 in December. This compares with 12.6 per cent in December, 1932.

Depression Trends in Utilization and Maintenance of Locomotives and Freight Cars

	Total M. of E. expense (000)	Per cent reduct. from 1928-29 average	M. of E. and Stores total hours of labor paid for* (000)	Per cent reduct. from 1928-29 average	Freight and pass. loco.-miles (000,000)	Per cent reduct. from 1928-29 average	Mach. and B. M. hours of labor paid for* (000)	Per cent reduct. from 1928-29 average	Freight car-miles (000,000)	Per cent reduct. from 1928-29 average	Carmen C and D hours of labor paid for* (000)	Per cent reduct. from 1928-29 average
1928	1,166,942	...	92,409	...	1,226	...	14,595	...	28,357	...	15,922	...
1929	1,199,402	...	92,155	...	1,233	...	14,481	...	29,124	...	16,069	...
1930	1,015,824	14.4	77,147	16.0	1,112	10.0	12,363	15.0	25,800	10.3	13,039	18.5
1931	816,953	30.8	60,288	35.0	959	22.0	9,954	32.0	21,766	24.2	10,033	37.3
1932	618,941	47.7	45,809	50.4	807	34.4	7,835	46.1	17,134	40.3	7,542	52.8
1933†	594,540	49.1	43,402	52.1	780	36.6	7,588	47.8	16,461	42.7	7,083	55.7

* Monthly average.
† Estimate.

locomotives on line now do not exceed the number of locomotives in active service in 1928 and 1929 by more than two or three thousand and that the present supply of serviceable locomotives are about equal in number to the locomotives actively in service during the first half of 1931.

The total expenditures for maintenance of equipment for 1933 amounted to $595,000,000 (estimated) as compared with $619,000,000 in 1932. Compared with the 1928-29 average, this is a reduction of 49.1 per cent. The total hours of labor paid for in the maintenance of equipment and stores department was 43,400, a reduction from 45,809 in 1932 and a reduction of 52.1 per cent from the 1928-29 average. The monthly average of machinists and boilermakers hours paid for also declined, amounting to 7,588 in 1933 and to 7,835 during the preceding year. The 1933 average represents a reduction of 47.8 per cent from the 1928-29 average. The estimated total of freight and passenger locomotive-miles was 780 million for the year as compared with 807 million during the preceding year, a reduction from 1928-29 of 36.6 per cent.

Freight-Car Conditions

Evidence of the continuing accumulation of deferred maintenance during 1933 is presented in one of the charts. It will be seen that the upward trend of the number of bad-order cars throughout 1932 continued

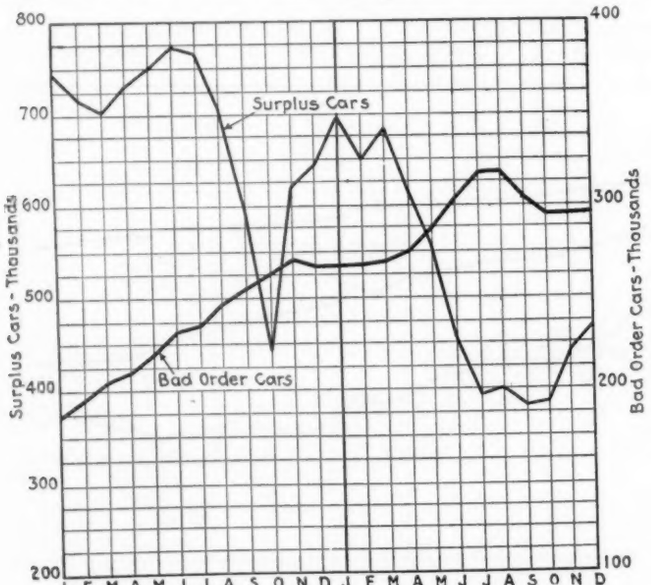


Fig. 2—Trends in Freight-Car Surplus and in Bad-Order Freight Cars

Another evidence of the continued accumulation of deferred freight-car maintenance lies in the fact that while the 16,400,000 freight-car-miles of 1933 represented a decline of 42.7 per cent from the 1928-29 average, the 7,083 hours of car-men's labor paid for on the average each month during 1933 represents a decline of 55.7 per cent from the 1928-29 average.

Passenger-Car Conditions

Passenger-car conditions vary widely on different railroads. Nearly two-thirds of the cost of the up-keep of passenger cars has to do with paint and varnish, on the exterior as well as on the interior, and with the interior appointments and facilities, all of which can be allowed to run down without jeopardizing the safety

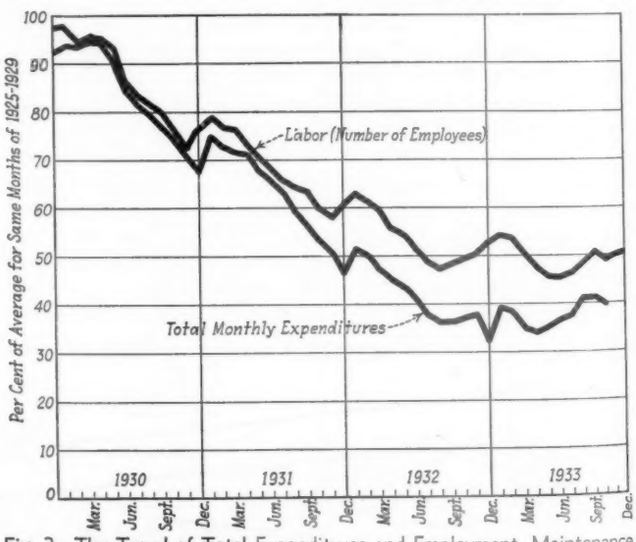


Fig. 3—The Trend of Total Expenditures and Employment, Maintenance of Way and Structures, Since December, 1929

Both the expenditures by months and the average number of employees at the middle of the month are expressed in per cents of the average figures for the corresponding months in the five years, 1929-1933. The curve for expenditures indicates a sharp upturn in January, 1931, 1932 and 1933, whereas the actual expenditures in those months did not differ greatly from the expenditures in the preceding Decembers. However, during the five years pre-depression period with which these expenditures are compared in the chart the average expenditure in January was markedly lower than in December.

of passenger-train operation. Advantage has been taken of this on many roads to effect a large reduction in expenditures. In some cases this has gone so far as to cause considerable deterioration of steel passenger coaches from corrosion of the outside sheets. The life

of some steel cars has thus been definitely shortened. The data are not available, however, on which to indicate quantitatively the extent to which these forces have been acting. Some roads are already lining up passenger-car rehabilitation programs financed by the Public Works Administration loans. Not less than 1,600 passenger cars are known to be scheduled for general repairs in these programs, and more are under consideration.

An Upturn in Maintenance of Way

The expenditures for maintenance of way and structures during 1933 totaled approximately $325,000,000,

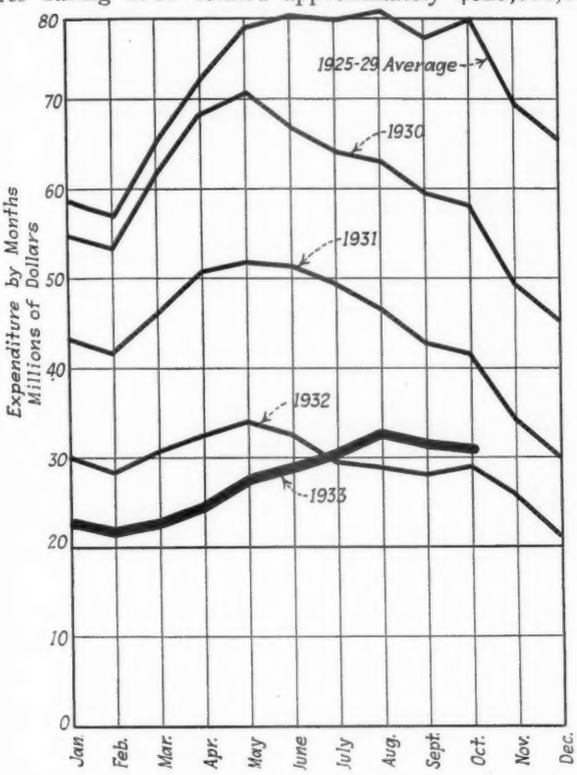


Fig. 4—Expenditures of Class I Railroads for Maintenance of Way and Structures by Months

the smallest sum expended by the railways for this purpose since 1909. It represented only 38 per cent of the average of $849,020,000 expended annually during the five years, 1925 to 1929, inclusive, and was less by about $26,000,000 than the outlay in 1932. It would appear from these figures that the activities of the maintenance of way forces had been subjected throughout 1933 to a more intensified application of the restrictive influences that had brought about a continuous decline in expenditures since the spring of 1930. This is strictly true only in so far as it concerns the first half of 1933, for there was a definitely upward trend in the second half. It is of interest to note also that the continuing process of retrenchment that began in May, 1930, was interrupted for a time during the second half of 1932.

These facts are not readily deduced from a table or chart of monthly expenditures, because of the influence of the normal seasonal fluctuations. It is only by eliminating this factor that the real trends can be ascertained, as has been done in the chart shown in Fig. 3. This was prepared by designating as the "normal" expenditure for each month, the average of the expenditures in each of the 12 months in the five years, 1925 to 1929, inclusive, and then determining the percentage relation which the expenditures of the months of the succeeding years bear to those "normal" averages of the

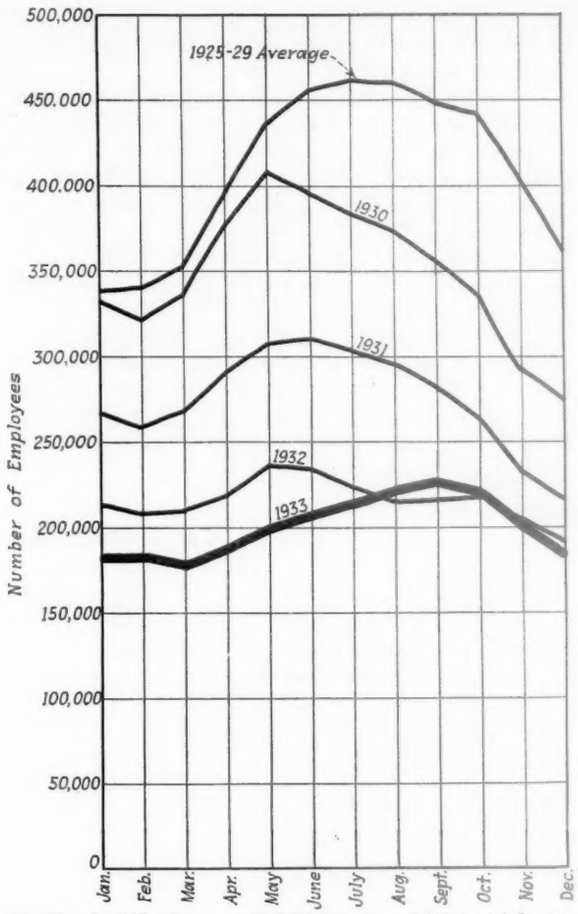


Fig. 5—Trend of Employment in Maintenance of Way and Structures. Average Number of Employees at the Middle of the Month, Class I Railroads

corresponding calendar months of the five-year period. The same procedure was followed also with respect to the number of employees.

Maintenance of Way and Structures
Average Number of Employees, at the Middle of the Month
Class I Railways*

	1930	1931	1932	1933
Jan.	331,292	267,432	212,816	180,676
Feb.	322,327	260,900	208,905	179,723
Mar.	337,188	269,047	210,004	175,453
Apr.	376,604	290,569	219,252	184,993
May	408,042	308,317	236,757	197,171
June	394,934	310,044	233,848	204,663
July	383,985	303,825	223,977	210,748
Aug.	374,499	296,024	217,255	219,055
Sept.	356,484	282,946	215,878	224,753
Oct.	337,056	264,289	217,534	218,316
Nov.	293,534	234,886	204,067	198,614
Dec.	274,479	217,195	190,358	182,300
Av.	349,202	275,486	215,887	198,038

* Figures for 1930, 1931 and 1932 include the returns from Class I switching and terminal companies, which increase the totals by about 3000, compared with the figures for 1933.

A Twenty-Seven Month Recession

This chart depicts the steady decline of maintenance of way activities in a manner that cannot be shown in any other way. The trend was steadily downward from May, 1930, to August, 1932, except for the sharp breaks in December, 1930 and 1931, which are explained in the caption of the chart. The chart brings out also the succeeding dips in December, 1932, and from January, 1933, to April, but what is more pertinent, it demonstrates clearly that there was a distinct upward trend beginning with May. The positive nature of this improvement is evidenced also in the table of expenditures by months for 1932 and 1933 from which it is seen that the outlays in July, August, September and October of 1933 exceeded

those for the corresponding months of the previous year, the first time that this has occurred since the beginning of the depression.

In view of these facts, little good can be accomplished by an analysis of the maintenance of way activities for 1933 as a unit. A more valid analysis is to be had by combining the first half of 1933 with the second half of 1932, since it is that 12 months that constituted the low year in the depression period. It is of interest also to compare the second half of 1933 with the first half, and to compare the two halves of 1933 with the corresponding six-months periods of 1932.

The expenditures of Class I railroads for maintenance of way and structures for the 12 months—July, 1932, to June, 1933—totaled $313,910,000, or less than 37 per cent of the average for the five years 1925-1929. In the first half of 1933 the expenditures were $147,499,000, or $41,021,000 less than in the first half of 1932. Unfortunately a corresponding comparison of the second halves of the two years is not possible, but the expenditures of the first four months, namely July, August, September and October, of the second half of 1933 amounted to $125,728,000, compared with $115,470,000 for the same months of 1932, or an increase of $10,258,000. There is every reason to believe that the maintenance of way expenditures in both November and December were sufficiently more than those of the same months of the earlier year, to bring the excess for the second half of 1933 to about $15,000,000, but this excess would fall short by $26,000,000 of offsetting the deficiency of $41,000,000 that was accumulated in the first half of 1933.

Car Surpluses and Bad Orders, 1932 and 1933

Freight-car condition as of first of each month

	Avg. no. surplus cars*		Awaiting minor repairs				Awaiting heavy repairs				Total bad-order cars			
			1932		1933		1932		1933		1932		1933	
	1932	1933	No.	Per cent of cars on line	No.	Per cent of cars on line	No.	Per cent of cars on line	No.	Per cent of cars on line	No.	Per cent of cars on line	No.	Per cent of cars on line
January	741,864	691,587	46,333	2.2	70,823	3.3	141,333	6.5	195,243	9.3	187,666	8.7	266,066	12.6
February	721,615	649,630	52,732	2.4	68,752	3.3	142,730	6.6	197,842	9.4	195,462	9.0	266,594	12.7
March	704,747	681,203	60,093	2.8	74,905	3.6	146,368	6.8	194,473	9.3	206,461	9.6	269,378	12.9
April	728,294	618,864	59,961	2.8	75,385	3.6	149,311	6.9	198,983	9.6	209,272	9.7	274,368	13.2
May	750,574	552,781	63,448	2.9	82,539	4.0	154,855	7.2	204,448	9.8	218,303	10.1	286,987	13.8
June	772,565	453,541	68,530	3.2	85,496	4.1	162,290	7.6	218,262	4.1	230,820	10.8	303,758	14.7
July	763,560	392,905	66,552	3.1	89,218	4.3	167,763	7.9	226,889	11.1	234,315	11.0	316,107	15.4
August	708,031	398,451	71,217	3.3	84,669	4.1	174,532	8.2	231,768	11.3	245,749	11.5	316,437	15.4
September	598,622	380,088	74,031	3.5	74,858	3.7	179,577	8.4	229,344	11.2	253,608	11.9	304,202	14.9
October	545,157	385,137	74,050	3.5	66,779	3.3	188,103	8.9	228,277	11.3	262,153	12.4	295,056	14.6
November	621,631	440,756	74,875	3.5	67,191	3.3	193,295	9.2	227,896	11.4	268,170	12.7	295,087	14.7
December	646,733	470,165	70,771	3.4	67,445	3.4	194,468	9.2	228,339	11.4	265,239	12.6	295,784	14.8

* Average last two weeks of the month.

Greater Activity in 1934

While the extent of maintenance of way operations during 1934 will necessarily depend largely on the trend of railway operating revenues, other factors are certain to exert a profound influence. Of primary importance is the fact that four years of curtailed expenditures have served to exhaust much of what may be termed the reserve service life of the ballast, ties, rails and other elements of the track structure, which they possessed as a result of the high standard of maintenance prevailing during the pre-depression period.

This can be well illustrated in the case of crosstie replacements. Thus, the tie renewals on Class I railways decreased from 8 per cent of the ties in track in 1925 to 7 per cent in 1929. In 1930 they dropped to 5.9 per cent, in 1931 to 4.8 per cent, and in 1932 to 3.7 per cent, while in 1933 they were still lower. Since a renewal rate of 3.7 per cent implies a life of more than 27 years, it is obvious that the renewals have been less than the deterioration.

What is actually happening is indicated by the experience of one western railway which has been among the early users of treated ties, and which prior to 1930 had a renewal rate averaging about 5 per cent per year. This rate was reduced in 1931 to about 4.3 per cent and in 1932 to 3.4 per cent. The urgent necessity for a still further cut in expenditures led to efforts to effect a still greater reduction in the tie renewals in 1933 by applying new ties only to the extent required to insure safety. However, before the year was over it was found that the renewals required on this basis were nearly as great as during 1932.

Must Increase Tie Renewals

This of course is the experience of a single road. On others, it has been found that a more rigid inspection of the tracks for renewal requirements has made it possible to effect more drastic postponements of renewals, while a few roads were compelled to insert more ties than in previous years. But regardless of the exact status of renewals on different roads, it is certain that the replacements during the last three years have been made at a rate that is appreciably lower than the rate of deterioration and that, on the whole, renewals will soon have to be made on a much more liberal basis than has prevailed in the last three years. The same conclusion applies with equal force to other track materials, as well as to items of deferred maintenance in bridges, buildings and water service facilities.

While there has been such a wide disparity in the policies observed on different roads as to render generalization hazardous, it is evident from a study of expenditures that maintenance work on structures has not been conducted on a scale that insures normal upkeep. Increased attention to painting by a few roads during the last year evidences a realization in some quarters of the serious consequences to accrue from further neglect of this essential item of upkeep.

However, aside from the unquestioned need for the conduct of maintenance operations on a greatly expanded scale, there is definite assurance of an increase in expenditures by reason of financial assistance from the Public Works Administration. This will include not only loans authorized from the specific allotment of $51,000,000 for the purchase of rails and track fastenings, but also loans made to assist in the conduct of other projects having to do with the maintenance of tracks and structures.

Program Now Thoroughly Launched

It is true that considerable delay attended the initial steps taken to extend federal assistance to the railways

in this connection. The President's plan for loans to finance rail purchases was announced on September 8, but the first loan was not approved until December 18. However, much more rapid progress was made thereafter, and by December 28, loans had been granted to nine railways covering contemplated purchases of 232,000 tons of rail and a proportionate tonnage of fastenings. In the meantime, due in part at least to the reduction in the price of rails from $40 to $36.375 per gross ton, orders for rail placed by railways independent of any federal aid totaled 182,000 tons. Adding to the above figures the tonnages represented in applications for loans not yet approved, as well as the rail orders now pending, the commitments of only 25 railways now aggregate over 500,000 tons. This figure is to be compared with a total of less than 150,000 tons of rail ordered in the 9½ months prior to October 15, and with a total of about 286,000 delivered during 1933 and also with the 394,000 tons laid in replacement in 1932.

While 1933 was a year of minimum expenditures, it was by no means devoid of developments that demonstrate the sustained interest of railway officers and representatives of the manufacturers in means to increase the strength of tracks and structures, and to effect greater economy in the maintenance of the fixed properties. Among evidence of the urge for improvement was the adoption by the American Railway Association of two new rail sections weighing 136 lb. and 112 lb. per yd., respectively, which had been developed by the Committee on Rail of the American Railway Engineering Association. Of equal importance is the widespread interest in the heat treatment of rail ends, a practice previously employed on other than an experimental basis by only one railway. The development during the year of two proprietary processes, one involving the use of the electric arc and the other of the oxy-acetylene flame, has given this practice pronounced impetus, with the result that a considerable part of the new rail laid during the present year will be given this treatment.

Other Developments

An innovation in the field of trackwork was the introduction of railway crossings fabricated from heat-treated standard carbon steel rails. Records of service tests indicate that this type of construction is applicable to a field that has been confined heretofore almost exclusively to manganese steel. There have been improvements also in other elements of special work, including a new automatic safety switch stand.

Ditching, bank widening and other roadway improvements that commonly attend ballasting or surfacing work have, of course, been drastically curtailed, but because of the outstanding improvements that have been made in the technic of subsurface drainage in recent years, several projects of this nature were completed during the year, especially such as were designed to cure sliding conditions of a serious nature, or to restore the stability of roadbeds that were so soft as to be a constant source of extraordinary expense. Many such projects of a highly profitable but less emergent nature remain to be carried out. An allied development of the year was the introduction of genuine wrought iron corrugated pipe.

Among the various classes of work equipment, electric welding outfits probably occupied the foremost position, so far as additions to plant during 1933 were concerned, considerable interest being taken in outfits mounted on crawler treads. Several new rail grinders, a new bolt tightener, a large ballast scarifier and an improved weed burner were among the new appliances of the year. In the case of track motor cars, the primary advance occurred in the large "party" or officers' inspection cars, including an adaptation of the automobile to rail service by means of pneumatic tires equipped with flanges. Two companies also introduced special "one-man" inspection cars, both comprising an extension of the trend toward lighter equipment.

The marked rise in the mileage of tracks abandoned and taken up has opened a new field for the employment of work equipment. Railway maintenance officers on whom have been imposed the task of salvaging the material from such lines, have found that work equipment is just as applicable here as in their regular replacement operations and are gradually developing schemes of organization and procedure that insure the maximum efficiency in removing the structures as well as the tracks of lines to be taken up.

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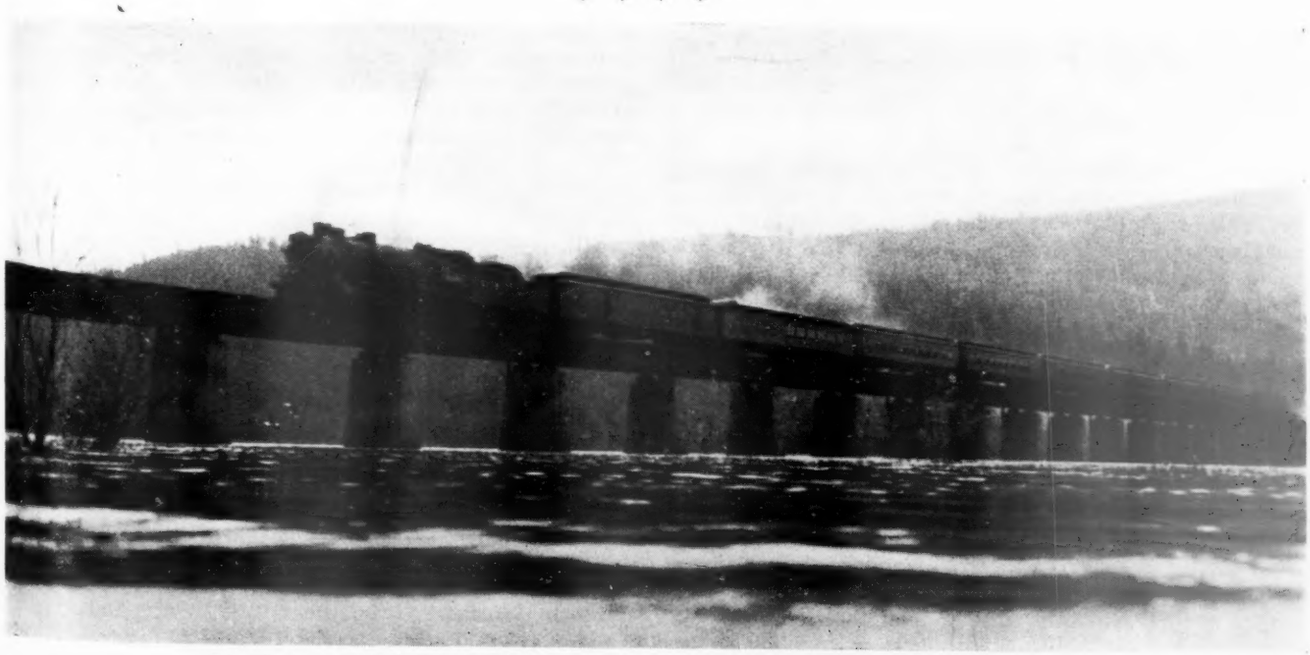
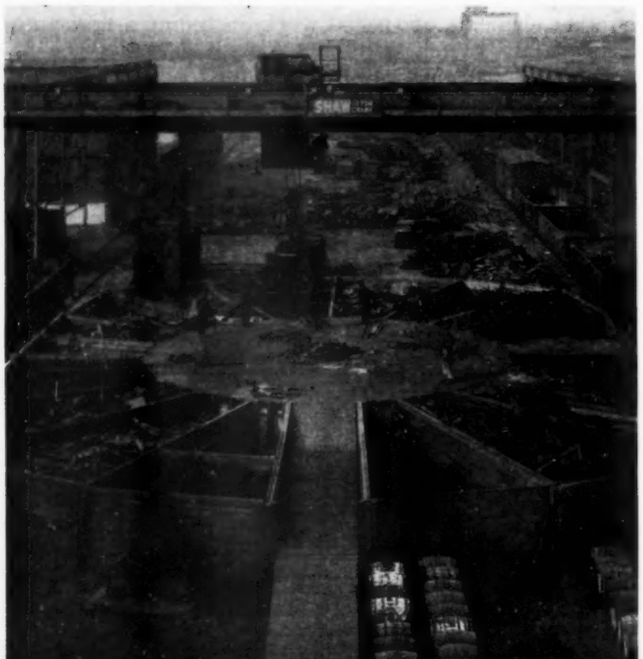


The Northern Pacific's "North Coast Limited" Crossing Lake Pend d'Oreille in the Idaho Panhandle

Railway Material Costs Advanced in 1933

Improved conditions and federal programs for restoration of business caused prices to rise on wide front—Increased purchasing in prospect

By D. A. Steel
Purchases and Stores Editor, Railway Age



Scrap Prices Are Coming Back

IT is putting it mildly to say that 1933 was an eventful year for the railroads in the material markets, and a poor appraisal that dismisses it as another depression year which should be forgotten as quickly as possible. Confusion still prevails regarding the full significance of the many things that happened since last January, but there is no obscuring their importance. It was in 1929 that prices began to fall, but that was an illustration of supply and demand. Buyers bought less and less and prices dropped more and more. Business, so people were told, was fundamentally sound and would recover, and the view prevailed that governments should keep out of business and reduce their expenses.

Last year, under the stress of a national emergency, the situation was reversed. The view was taken that neither business nor living conditions were fundamentally sound and widespread intervention and participation by government in business occurred, involving extraordinary measures to control production and wages and to raise prices, as well as unprecedented application of government money and credit. As a consequence, buying has, for some months, been affected more with the vagaries of the money market, industrial codes and national credit than with questions of supply and demand. Materials of all kinds are subject to the new order and the railroads are involved because their purchasing embraces all kinds of materials.

Net Costs Increased 15 Per Cent

Such developments as the departure of the United States government from the gold standard do not appear to have materially increased the total cost of railway purchases in the 12 months of 1933 over their cost in 1932. The average cost of forest products was about 20 per cent higher, but fuel, a larger item of expense, was 10 per cent lower. At best, the total cost of material to all the roads was not increased more than 5 per cent. This, however, was because of the lower prices prevailing in the first half of 1933 and not because of what happened since that time. Prior to May, prices in general were lower than at any time since 1929 and many years previous.

Since May, the trend has been upward. Net prices of iron and steel products have been increased 10 per cent, although the cost of rails was reduced 9 per cent. The net average cost of miscellaneous materials has been increased 11 per cent. Current prices of coal and fuel oil are higher by from 15 to 25 per cent than they were when the commodities were contracted for last spring and the prices of forest products have increased 50 per cent. At present levels, the railroads will have to pay at least 15 per cent more for their requirements this year than they did in 1933. This means that it will cost them over $60,000,000 more for supplies this year than last without figuring any increase in volume.

As pointed out elsewhere in this and previous issues of the *Railway Age**, facts regarding railway purchases and maintenance in the last three years and provisions made for government financing of railway work, as well as the improvement definitely taking place in business, forecast increased purchases by the railroads this year, a conclusion which is further supported by opinions of representative roads. Out of 10 roads selected at random, the opinions of 8 are for increased purchases of fuel and rails, 6 for increased purchases of ties and all 10 for increased purchases of lumber and miscellaneous supplies. A large increase in the purchase of equipment is also assured.

Up to the present, the principal factors in price increases are the codes, in which minimum hours and wages are prescribed and industries are permitted to fix and publish prices. The codes expire this spring, but will be extended. In every instance, they involve experimentation by competing industries in "self-government" and contain provisions affecting prices in one way or another which will require adjustment. But, their operation is sure to aid in upholding prices that are now established or that will be established as increased business or other conditions strengthen the manufacturer's position.

Iron and Steel Costs

As in previous years, there were fewer and smaller increases among the prices of iron and steel articles

* Issues of January 6, 1934, and October 28, 1933.

than in other classes of manufactured materials, but, with the exception of rail which was reduced from $40 to $36.375 per ton by special negotiations participated in by the President of the United States as well as the federal co-ordinator of railroads, the codes provided for some increase in the cost of practically all iron and steel products used by the railroads, although the railroads took a smaller percentage of the iron and steel production last year than in any year in the history of that industry.

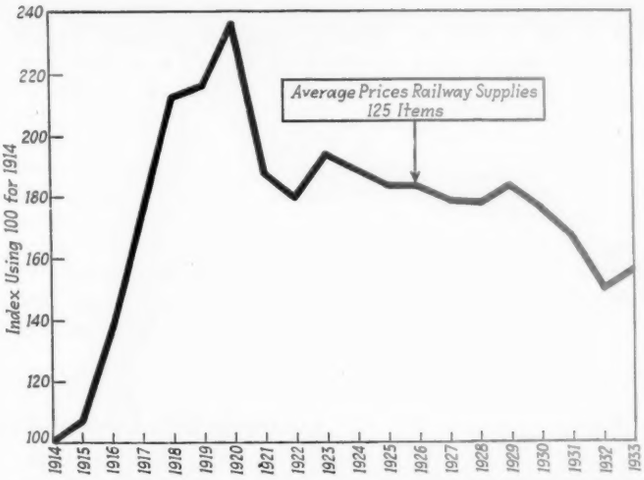
One road has bought tie plates since October for $33.80 per ton, but prevailing prices, with and without copper, ranging from $38.00 to $41.80 per ton in 1933, are from 3 to 15 per cent higher than the corresponding prices paid last January, and from 2 to 20 per cent above the prices paid during the last quarter of 1932. The cost for the year was 3 per cent higher. Track bolts, which were bought at prices ranging from $3.38 to $4.15 per cwt. since last October, now cost the roads about 10 per cent more than a year ago, although the average for 1933 was about 5 per cent higher than in 1932. A few roads paid 7 per cent less for track spikes since last October than last spring, but, in general, current prices, varying from $2.25 to $2.50 per cwt., were from 10 to 15 per cent higher than a year ago, although the average of the year was 10 per cent under the average cost in 1932. Track chisels, for which the roads paid from $1.64 to $1.75 last year, reflected little or no change from the 1932 prices, but there were increases varying from 8 to 30 per cent in the prices paid for track shovels, bringing the average cost of shovels 6 per cent above that paid in 1932. Prices of wire fencing, although no higher in the aggregate than in 1932, were 10 per cent higher than a year ago, while increases of 6 per cent and 20 per cent have been paid since October for structural steel, the average cost of fabricated steel in 1933 showing a 9-per cent increase over 1932.

Car and Locomotive Materials

Cast-iron pipe averaged 15 per cent higher than in 1932 and increased from 7 to 25 per cent since last January, while culvert pipe is now from 2 to 20 per cent higher than a year ago. Bar steel now averages 6 per cent higher than a year ago. Boiler plate has recently cost some roads 12 per cent more than a year ago, and one road recently paid 17 per cent more for spring steel than last January, while corresponding increases of 5 to 10 per cent are being paid for sheet steel. Some roads paid slightly less for boiler tubes last year than in 1932, but the cost of pig iron has increased 20 per cent, with the prices of locomotive and car brake shoes showing increases of from 5 to 7 per cent from a year ago. Although the average cost to the railroads of iron, malleable and steel castings throughout 1933 was practically unchanged from the average cost in 1932, some roads are now paying from 7 to 20 per cent more for these materials than a year ago. Current prices of couplers are about 10 per cent above the prices prevailing last January, and some roads have paid 4 per cent more for axles since October. In the case of steel pipe and nails, etc., the prices since October show increases up to 20 per cent.

Some Coal Up 30 Per Cent

Notwithstanding the marked reductions in coal prices prior to 1932, further reductions in fuel consumption and the increased rivalry for business by competing coal districts and substitute fuels brought further reductions in coal prices in 1933, with the result that railroads throughout the country, almost without exception, were able to secure their requirements for the year at lower average prices than in 1932. A railroad in New England bought



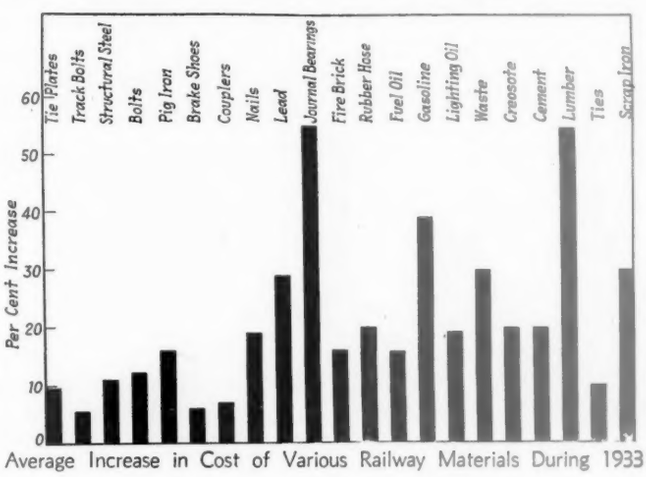
Average Unit Costs of Railway Materials—1914 to 1933, Inclusive

coal at the mine last year for 48 cents per ton, while several roads in the East obtained it for less than $1.00 per ton, and the average for the country, 10 months considered, was only $1.55 per ton, without freight, as compared with $1.68 in 1932.

The passage of the National Recovery Act last June and the adoption of the code for the bituminous industry in October have caused considerable unrest in various mining fields and precipitated several strikes and controversies demanding the attention of the federal government. Their effect has been to increase wages, however, and to establish higher prices for coal, amounting in some cases to 30 per cent. In eastern Kentucky, wages, which had ranged from $2.60 to $2.80, went up to $4.65 per day. In western Kentucky, the increase was from $1.75 to $2.25 to $4 per day, while at Pocahontas mines the change was from $2.20 to $3.04 to a uniform wage of $4.60. The code resulted in practically unionizing all fields. With the assurance that these codes will be extended beyond their expiration dates, without any reduction in wage scales, railroads must pay considerably more for their coal than they have to date, except in those localities where they use very little coal or where the requirements of 1934 were contracted for in 1933, or where, as will develop in some cases, the railroad shift their tonnage to other sections. Only 1 of 13 roads expects to buy fuel cheaper this year than last year. Protection from the highest prices charged will be afforded the railroads, however, in their practice of absorbing coal not adapted for commercial use.

Less Change in Fuel Oil

Although fuel oil production was under better control, the depressed state of business last spring and the fact



Average Increase in Cost of Various Railway Materials During 1933

that fuel oil is a secondary rather than a primary product of the petroleum industry made it possible for the roads to secure most of this kind of fuel at prices comparable with or even lower than during 1932. Prices, for example, ranged from 27½ cents to 60 cents per bbl. in the Mid-Continent field, 7½ cents to 42½ cents per bbl. in East Texas, and from 32½ cents to 60 cents per bbl. in other parts of that state. While average prices paid since October by 13 roads in all parts of the country, amounting to 2.82 cents per gal., were 15 per cent above the corresponding prices last January, the total cost of fuel oil in 1933 was only about 5 per cent above that paid in 1932. The spread between current prices and those at which fuel oil was purchased last year is expected to be from 15 to 25 per cent during the coming months under the petroleum code, but the refineries are producing a better grade of oil for the money.

There is considerable difference between the prices paid for gasoline by the railroads, current prices varying 100 per cent between roads, depending upon their location and other factors. Prices also show considerable variation throughout the year. In the aggregate, gasoline cost the roads slightly less in 1933 than in 1932, but practically no road is now buying gasoline as cheap as it was able to obtain it a year ago. The increases vary from 10 to 70 per cent and average 37 per cent.

Average Unit Costs of Railroad Materials—1927-1933

Description	Unit	1927	1928	1929	1930	1931	1932	1933 First Quarter	1933 Mid-year	1933 Last Quarter	1933 High	1933 Low	1933 Aver.	Year Average 1932 = 100	Last Quarter 1933 Jan. = 100
TRACK MATERIALS															
Rail	N. t.	$43.00	$43.00	$43.00	$43.00	$43.00	$42.00	$40.00	$40.00	$36.37	$40.00	$36.37	$38.79	97	91
Tie plates	Steel N. t.	45.98	42.43	42.10	41.22	38.88	36.40	35.20	36.00	38.76	41.89	32.50	36.64	100	109
Track bolts	Heat-treated, with nuts Cwt.	4.00	3.83	3.75	3.94	3.74	3.42	3.44	3.45	3.67	4.15	3.18	3.52	102	106
Track chisels	Alloy steel Ea.	1.96	1.76	1.74	1.71	1.64	1.64	1.69	1.70	1.71	1.75	1.64	1.70	103	102
Track spikes	High-carbon steel Cwt.	2.80	2.76	2.71	2.68	2.57	2.45	2.24	2.27	2.45	2.84	2.03	2.32	95	110
Track shovels	No. 2 carbon steel Doz.	12.95	13.82	11.28	10.02	9.98	10.93	11.07	11.37	12.16	12.45	9.86	11.53	106	110
Bond wire	48-in. copper-clad Cwt.	14.78	17.50	18.56	17.69	15.89	14.48	14.38	15.05	14.50	16.79	14.50	14.99	103	101
Wire fence	26-in. to 47-in. woven Rod	.467	.488	.426	.428	.396	.383	.326	.358	.390	.481	.296	.358	94	120
Steel, structural	Angles Cwt. b.	1.98	1.98	2.35	1.98	1.84	1.73	1.72	1.72	1.81	2.23	1.60	1.75	101	105
Steel, structural	Fabricated Cwt. b.	4.17	4.17	3.32	3.35	2.73	2.72	2.77	2.82	3.09	3.37	2.43	2.90	107	111
Pipe, cast-iron	12-in. Class B N. t.	41.13	41.13	39.41	40.37	35.58	33.94	37.25	38.25	38.25	42.50	32.00	37.91	112	102
Pipe, clay	24-in. vitrified Ft.	1.39	1.38	1.16	1.76	1.40	1.95[1]	1.72[1]	1.70[1]	1.80[1]	3.03[1]	1.17[1]	1.74[1]	90	105
LOCOMOTIVE AND CAR MATERIALS															
Bolts	¾ by 6 machine, with nuts 100 pcs.	5.13	5.02	4.87	4.81	4.20	4.04	4.25	4.36	4.80	5.54	3.67	4.70	116	112
Boiler tubes	2-in. No. 11 gage steel Ft.	.172	.172	.174	.154	.152	.152	.155	.155	.157	.181	.150	.156	103	101
Bar steel	Open-hearth Cwt. b.	2.13	2.58	2.17	1.85	1.80	1.72	1.70	1.70	1.80	2.23	1.57	1.73	96	106
Steel	High-speed tool Lb. b.	.59	.58	.57	.66	.52	.49	.52	.52	.52	1.00	.25	.52	106	100
Steel	Boiler Cwt. b.	2.01	2.00	2.33	2.01	1.86	1.73	1.79	1.80	1.85	2.57	1.44	1.82	105	103
Steel	Spring Cwt. b.	2.74	2.63	2.84	2.62	2.42	2.18	2.24	2.24	2.36	3.50	1.60	2.23	102	105
Steel	24-gage black Cwt.	3.20	2.99	3.25	2.90	2.65	2.69	2.64	2.58	2.79	4.55	2.10	2.68	101	106
Pig iron	No. 1 G. t.	20.50	20.50	17.35	16.61	15.37	14.85	14.70	15.50	17.08	17.50	13.60	15.74	106	116
Brake shoes	Locomotive driving N. t.	61.70	61.70	59.54	60.00	56.53	54.28	53.50	54.50	56.00	59.50	52.00	54.60	100	105
Brake shoes	Freight car N. t.	36.93	39.98	37.55	35.42	35.12	32.70	32.41	33.54	34.58	39.50	31.00	33.40	102	106
Castings, grey iron	Green sand Cwt.	3.86	3.97	4.12	4.12	4.09	3.82	3.90	3.58	3.93	4.75	3.12	3.82	100	101
Castings, malleable	7 to 15 lb., 25 to 100 pcs. Cwt.	9.13	8.50	8.68	8.27	7.68	7.59	7.15	7.20	7.80	9.78	5.94	7.42	98	109
Castings, steel	25 to 50 lb., under 50 pcs. Cwt.	8.64	7.97	8.32	8.46	7.73	7.37	7.32	7.12	7.30	9.00	6.50	7.25	98	100
Couplers	5 by 7 by 6½ ARA-D car Pr.	41.20	40.20	40.20	41.20	39.20	38.13	38.20	38.20	41.00	48.95	37.20	39.20	103	107
Axles, Locomotive	Driving, carbon Cwt.	5.16	5.21	4.84	4.29	4.75	4.55	4.56	4.60	4.65	5.15	3.96	4.56	100	101
Axles, car	5 by 9, rough turned Cwt.	2.94	2.94	2.94	2.88	2.88	2.75	2.50	2.52	2.56	3.39	2.24	2.53	92	103
Tires, frt. loco	33 in., rough bored Cwt.	6.11	6.11	5.84	6.22	6.03	5.86	5.55	5.55	5.54	7.16	2.59	5.55	95	102
Pipe	1-in. black steel Ft.	.076	.069	.066	.067	.069	.063	.065	.064	.068	.079	.049	.063	100	104
Wire nails	Common Cwt. b.	2.58	2.62	2.62	2.29	2.07	2.18	2.08	2.15	2.48	3.54	1.85	2.23	102	119
Pig lead	Virgin Cwt.	7.04	6.43	6.95	5.64	4.42	3.53	3.48	4.53	4.50	5.88	2.85	4.17	118	129
Copper	Sheet, soft Lb.	.218	.23	.27	.259	.181	.180	.156	.163	.185	.179	.115	.169	94	118
Journal bearings	A. R. A. Lb.	.142	.141	.167	.149	.10	.070	.070	.082	.094	.101	.058	.081	115	156
Wire, copper	No. 9 bare Lb.	.149	.167	.195	.163	.115	.100	.106	.112	.120	.145	.073	.113	113	113
Wire, copper	T. B. weather-proof No. 10 Cwt.	18.70	19.73	21.00	19.00	15.81	13.00	16.95	17.31	20.70	30.00	12.78	18.30	140	121
FUEL AND MISCELLANEOUS															
Boiler lagging	1¼ in. by 6 by 36 mag. Sq. ft.	.21	.22	.236	.160	.155	.156	.156	.156	.156	.180	.144	.156	100	100
Fire brick	Soft M	41.74	43.08	41.73	41.85	39.29	34.70	34.80	36.00	41.80	45.00	30.00	37.20	107	116
Hose	Air brake, 1½ by 22 ARA Ft.	.48	.46	.44	.45	.37	.33	.29	.30	.35	.35	.26	.31	95	120
Leather	Belting, 6-in. double Ft.	1.22	1.35	1.39	1.39	1.23	1.27	1.13	1.15	1.24	1.58	.72	1.17	93	110
Rope	¾-in. manila Lb.	.217	.199	.199	.180	.153	.142	.120	.122	.138	.17	.110	.127	90	107
Rope	¾-in. 6 by 19 plow steel Ft.	.125	.119	.144	.14	.143	.132	.129	.138	.144	.160	.120	.137	103	111
Rubber, red	⅛-in. sheet packing Lb.	.32	.28	.247	.25	.225	.176	.154	.177	.187	.450	.120	.172	98	120
Fuel oil	Tank lots Gal.	.028	.024	.021	.02	.017	.015	.024	.023	.028	.042	.005	.025	166	116
Gasoline	Gal.	....	....	....	....	....	.049	.039	.046	.054	.077	.018	.047	94	139
Oil	Long-time—tanks Gal.	.096	.09	.087	.117	.062	.061	.048	.054	.057	.107	.039	.051	84	119
Oil	Car—tank lots Gal.	.180	.157	.157	.163	.138	.127	.137	.132	.132	.160	.110	.134	105	100
Grease	Driving box Lb.	.160	.122	.125	.131	.122	.118	.112	.111	.102	.145	.098	.109	92	92
Waste	Colored cotton Lb.	.098	.091	.086	.084	.076	.051	.048	.053	.070	.098	.040	.057	111	130
Creosote oil	Tank lots Gal.	.157	.157	.139	.130	.115	.108	.094	.083	.103	.110	.066	.093	85	120
Glass	24 by 24 dsa. Box	5.23	5.10	5.76	5.84	4.80	4.71	4.97	5.07	5.50	6.37	3.62	5.18	108	108
Linseed oil	Boiled Lb.	.088	.093	.117	.120	.09	.068	.077	.093	.093	.105	.06	.087	128	100
White lead	In oil—100-lb. keg Lb.	.11	.102	.104	.106	.107	.088	.079	.079	.081	.105	.074	.080	100	103
Cement, Portland	In paper Bbl.	2.21	1.85	1.87	1.76	1.42	1.42	1.71	1.60	1.91	2.29	1.25	1.80	126	120
Soda ash	Water softening Cwt.	1.33	1.40	1.46	1.56	1.55	1.30	1.21	1.20	1.20	2.67	.80	1.21	93	100
Hydrated lime	Water softening N. t.	13.63	11.99	11.96	9.73	9.53	9.49	8.16	8.15	8.76	12.10	6.00	8.35	88	105
Oxygen	100 cu. ft.	1.29	1.04	1.03	1.05	1.06	1.02	1.03	1.03	1.05	...	...	1.04	115	102
FOREST PRODUCTS—MILL															
Lumber	Fir, 1 by 6 No. 1 com. M ft.	27.81	27.81	20.02	15.56	10.83	18.76[2]	20.71[2]	23.71[2]	31.00[2]	39.00[2]	15.00[2]	25.14[2]	134	150
Lumber	Pine, 2 by 4 by 10, No. 1 com. M ft.	32.93	29.99	26.21	25.83	18.93	21.83[3]	31.25[3]	35.25[3]	43.75[3]	50.00[3]	24.00[3]	36.75[3]	167	140
Lumber	Fir sills, 6 by 10 by 40 M ft.	33.02	31.69	21.50	21.76	14.50	10.23[4]	10.00[4]	12.00[4]	17.00[4]	21.00[4]	8.00[4]	13.00[4]	126	175
Bridge stringers	Fir, 8 by 16 by 28 struct. M ft.	35.38	29.15	20.53	18.70	14.90	12.52[5]	12.30[5]	14.85[5]	19.85[5]	24.00[5]	9.00[5]	15.70[5]	126	160
Cross ties	Fir, 7 by 9 by 8'6 Ea.	.60	.60	.67	.80	.50	.50	.47	.46	.54	.79	.37	.49	98	117
Cross ties	Pine, 7 by 9 by 8'6 Ea.	.67	.67	.67	.77	.65	.73	.65	.63	.64	.80	.44	.64	87	100
Cross ties	White oak, 7 by 9 by 8'6 Ea.	.98	.95	.93	.92	.83	.75	.66	.66	.76	1.16	.50	.69	92	115
SCRAP IRON															
Railroad scrap	No. 1 railroad wrought N. t.	11.16	11.39	11.96	8.68	7.20	4.20	5.34	7.70	6.96	8.00	2.52	6.65	158	130
Railroad scrap	No. 1 heavy melt N. t.	11.63	11.34	12.82	10.62	7.33	5.34	5.95	8.32	7.62	10.40	2.52	7.32	137	128
Railroad scrap	Rails for re-rolling N. t.	13.80	12.92	14.49	12.55	10.05	7.18	6.80	9.10	8.50	11.00	2.52	8.10	113	125

[1]Culvert, 24-in. corrugated. [2]1 by 6 by 9 B & B siding. [3]2 by 6 by 18 B & B siding. [4]6 by 6 sel. com. rgh. [5]16 in. by 32 ft., or less.

The average cost of illuminating oils has increased 19 per cent from a year ago.

Lumber Prices Soar

If conditions in the lumber industry were judged by the changes which have occurred in lumber prices since 1932, the conclusion would be that this business is at last out of the troubles which have beset it for years. While a more complete understanding of the lumbering and marketing conditions forbid such a conclusion, the industry has, since last March, provided a remarkable demonstration of what codes can do, especially when accompanied with a revival in demand, however artificial. Its "regimentation" was easily the outstanding example

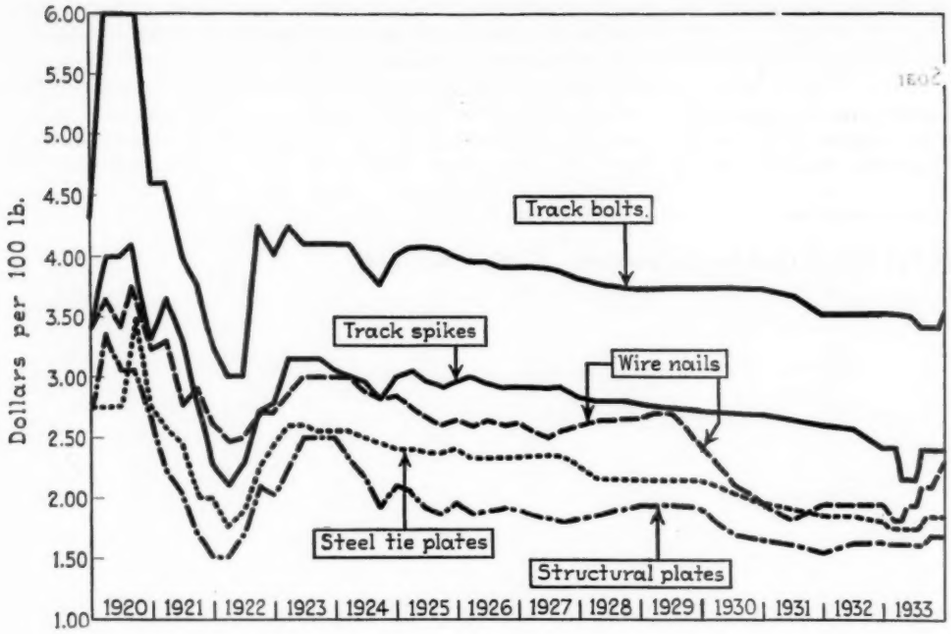
Cost Per Ton of Coal for Locomotives—Class I Railroads*

	1924 Dollars	1925 Dollars	1926 Dollars	1927 Dollars	1928 Dollars	1929 Dollars	1930 Dollars	1931 Dollars	1932 Dollars	1933† Dollars
New England Region	5.14	4.66	4.59	4.52	4.34	4.24	4.18	3.94	3.73	3.59
Great Lakes Region	3.31	2.98	2.88	2.96	2.84	2.73	2.64	2.37	2.25	2.11
Central Eastern Region	2.62	2.28	2.26	2.26	2.09	2.01	1.96	1.84	1.62	1.51
Eastern District	3.11	2.75	2.67	2.70	2.55	2.45	2.39	2.22	2.04	1.90
Pocahontas Region	2.13	1.78	1.82	1.78	1.69	1.67	1.68	1.66	1.58	1.49
Southern Region	2.78	2.40	2.31	2.26	2.19	2.10	2.06	1.95	1.79	1.72
Southern District	2.62	2.25	2.19	2.15	2.08	2.00	1.96	1.88	1.74	1.66
Northwestern Region	3.42	3.19	3.09	3.21	3.02	2.79	2.66	2.55	2.53	2.37
Central Western Region	3.06	2.90	2.83	2.83	2.68	2.51	2.49	2.45	2.24	2.11
Southwestern Region	3.16	2.95	2.85	2.88	2.64	2.42	2.29	2.15	1.88	1.75
Western District	3.22	3.02	2.94	3.00	2.82	2.61	2.53	2.45	2.31	2.17
United States	3.03	2.72	2.63	2.66	2.53	2.40	2.34	2.21	2.05	1.93

* Invoice price plus freight charges by foreign lines changed to operating expenses—I. C. C. reports.
† 10 months.

Average Cost of Coal Per Ton—Ten Months, 1933

Region and Road	With Freight 1933	With Freight 1932	Without Freight 1933	Without Freight 1932
New England Region:				
Bangor & Aroostook	$3.98	$4.14	$3.98	$4.14
Boston & Albany	3.94	4.04	1.67	1.66
Boston & Maine	3.59	3.85	1.85	3.18
Canadian National (in New Eng.)	3.92	4.30	.48	.88
Canadian Pacific (in Maine)	4.55	4.87	2.07	2.42
Canadian Pacific (in Vermont)	4.19	4.68	1.04	1.82
Central Vermont	4.23	4.34	1.28	1.42
Maine Central	4.13	4.33	4.13	4.33
New York, New Haven & Hartford	3.13	3.25	.80	.94
Rutland	3.34	3.48	2.25	2.20
Great Lakes Region:				
Ann Arbor	2.77	2.79	.94	.96
Cambria & Indiana	1.44	1.54	1.44	1.54
Delaware & Hudson	2.91	2.98	1.51	1.61
Delaware, Lackawanna & Western	2.90	3.02	1.43	1.48
Detroit & Mackinac	3.39	3.49	1.06	1.03
Detroit & Toledo Shore Line	2.90	2.98	1.29	1.48
Erie and Chicago & Erie	1.88	2.09	1.32	1.51
Grand Trunk Western	2.57	2.75	.88	1.02
Lehigh & Hudson River	3.33	3.51	.80	.91
Lehigh & New England	2.74	2.74	1.12	1.17
Lehigh Valley	2.85	2.97	.98	1.09
Michigan Central Lines	1.67	1.94	1.56	1.79
Monongahela	.97	1.18	.97	1.18
Montour	1.56	1.63	1.56	1.63
New Jersey & New York	4.34	4.58	1.41	1.66
New York Central	1.60	1.80	1.37	1.55
New York, Chicago & St. Louis	2.45	2.49	1.29	1.41
New York, Ontario & Western	2.67	2.65	.95	.88
New York, Susquehanna & Western	4.02	4.17	1.40	1.60
Pere Marquette	3.15	3.30	1.32	1.45
Pittsburgh & Lake Erie	1.53	1.57	1.37	1.56
Pittsburg & Shawmut	1.67	1.71	1.67	1.71
Pittsburgh & West Virginia	1.36	1.09	1.36	1.09
Pittsburg, Shawmut & Northern	1.63	1.71	1.63	1.71
Wabash	1.99	2.24	1.50	1.53
Central Eastern Region:				
Akron, Canton & Youngstown	1.99	2.10	1.04	1.07
Baltimore & Ohio	1.17	1.16	1.13	1.12
Bessemer & Lake Erie	1.59	1.85	1.52	1.74
Central of New Jersey	2.93	3.11	1.01	1.18
Chicago & Eastern Illinois	1.73	1.90	1.72	1.87
Chicago & Illinois Midland	1.75	1.94	1.75	1.85
Chicago, Indianapolis & Louisville	1.61	1.78	1.61	1.76
Cleve., Cin., Chic. & St. Louis	1.63	1.78	1.44	1.58
Detroit, Toledo & Ironton	2.26	2.43	1.16	1.31
Elgin, Joliet & Eastern	1.75	2.13	1.75	1.94
Illinois Terminal	1.86	2.02	1.82	1.92
Long Island	3.54	3.75	1.24	1.45
Missouri-Illinois	1.42	1.56	1.36	1.35
Pennsylvania system	1.34	1.50	1.31	1.47
Penna.-Read.-Seashore Line	3.44	3.29	1.29	1.34
Reading	2.36	2.75	1.11	1.37
Staten Island Rapid Transit	3.58	3.96	1.15	1.55
Western Maryland	1.49	1.60	1.48	1.59
Wheeling & Lake Erie	1.35	1.35	1.35	1.35
Pocahontas Region:				
Chesapeake & Ohio	1.50	1.60	1.50	1.60
Norfolk & Western	1.32	1.40	1.32	1.40
Richmond, Fredericksburg & Potomac	3.15	3.15	.88	.92
Virginian	1.42	1.60	1.42	1.60
Southern Region:				
Alabama Great Southern	1.44	1.97	1.44	1.72
Atlanta & West Point	2.57	2.67	1.36	1.43
Atlanta, Birmingham & Coast	1.81	1.97	1.39	1.56
Atlantic Coast Line	2.66	2.74	1.07	1.16
Central of Georgia	2.01	2.10	1.93	1.99
Charleston & Western Carolina	2.47	2.60	1.07	1.20
Cin., New Orleans & Texas Pac.	1.76	1.82	1.47	1.52
Clinchfield	1.06	1.19	1.06	1.19
Columbus & Greenville	2.20	2.50	1.17	1.41
Florida East Coast		Fuel Oil		
Georgia	2.97	3.02	1.10	1.16
Georgia & Florida	$2.79	$2.87	$1.10	$1.13
Georgia, Southern & Florida	3.79	3.93	1.73	1.91
Gulf & Ship Island	3.12	3.20	1.21	1.24
Gulf, Mobile & Northern	1.75	1.88	.97	1.01
Illinois Central lines	1.72	1.72	1.51	1.52
Louisville & Nashville	1.32	1.36	1.32	1.36
Mississippi Central	2.41	2.46	.86	.92
Mobile & Ohio	1.69	1.83	1.69	1.83
Nashville, Chattanooga & St. Louis	1.79	1.84	1.72	1.76
New Orleans & Northeastern	3.10	3.40	1.40	1.68
Norfolk Southern	2.67	2.77	.84	.88
Northern Alabama	1.44	1.57	1.44	1.57
Seaboard Air Line	2.17	2.37	1.04	1.21
Southern	1.31	1.41	1.26	1.35
Tennessee Central	1.27	1.50	1.27	1.50
Northwestern Region:				
Chicago & North Western	1.86	2.16	1.86	2.03
Chicago Great Western	2.49	2.63	1.33	1.42
Chicago, Mil., St. P. & Pacific	2.00	2.14	2.00	2.11
Chicago, St. P., Minn. & Omaha	3.58	3.61	3.30	3.36
Duluth, Missabe & Northern	4.12	4.34	4.12	4.34
Duluth, South Shore & Atlantic	3.68	3.73	3.66	3.69
Duluth, Winnipeg & Pacific	3.54	3.47	3.24	3.16
Great Northern	2.82	2.88	2.82	2.88
Green Bay & Western	3.91	4.24	3.86	4.24
Lake Superior & Ishpeming	3.77	3.72	3.77	3.72
Minneapolis & St. Louis	2.33	2.14	2.32	1.88
Minneapolis, St. P. & Sault Ste. Marie	3.22	3.49	2.88	3.15
Northern Pacific	2.24	2.51	2.22	2.50
Oregon-Washington Navigation Company	5.90	4.72	2.63	2.55
Spokane International	5.47	5.46	3.64	3.58
Spokane, Portland & Seattle		Fuel Oil		
Central Western Region:				
Alton	1.71	1.90	1.70	1.84
Atchison, Topeka & Santa Fe	2.43	2.64	2.41	2.59
Chicago, Burlington & Quincy	1.76	1.88	1.71	1.76
Chicago, Rock Island & Pacific (Inc. Chicago, R. I. & Gulf)	2.06	2.30	1.93	2.13
Colorado & Southern	2.18	2.40	2.13	2.33
Denver & Rio Grande Western	1.51	1.58	1.51	1.58
Denver & Salt Lake	.84	1.01	.84	1.01
Fort Worth & Denver City	4.23	4.64	2.14	2.31
Los Angeles & Salt Lake	3.50	3.43	3.50	3.43
Nevada Northern	4.50	4.50	1.66	1.78
Northwestern Pacific		Fuel Oil		
Oregon Short Line	3.09	3.12	2.37	2.53
St. Joseph & Grand Island	3.09	3.12	2.62	2.62
San Diego & Arizona		Fuel Oil		
Southern Pacific (Pacific lines)	3.16	2.93	3.16	2.93
Toledo, Peoria & Western	1.47	2.10	1.42	1.67
Union Pacific	2.33	2.47	2.31	2.45
Utah	1.05	1.03	1.05	1.03
Western Pacific	2.88	2.95	1.63	1.69
Southwestern Region:				
Burlington-Rock Island		Fuel Oil		
Fort Smith & Western	2.66	2.80	2.66	2.80
Gulf Coast lines		Fuel Oil		
Gulf, Colorado & Santa Fe		Fuel Oil		
International-Great Northern		Fuel Oil		
Kansas City Southern (Inc. Texas & Fort Smith)	1.86	1.98	1.86	1.98
Kansas, Oklahoma & Gulf	1.82	2.12	1.50	1.79
Louisiana & Arkansas		Fuel Oil		
Louisiana, Arkansas & Texas		Fuel Oil		
Midland Valley	1.51	1.76	1.51	1.76
Missouri & North Arkansas	2.64	2.86	2.23	2.48
Missouri-Kansas-Texas lines	2.49	2.67	2.32	2.45
Missouri Pacific	1.68	1.84	1.68	1.83
Oklahoma City-Ada-Atoka	2.20	2.42	1.79	2.01
St. Louis-San Francisco	1.74	1.91	1.67	1.88
St. Louis Southwestern lines	1.88	1.90	1.06	1.07
Texas & Pacific		Fuel Oil		
Texas Mexican		Fuel Oil		
Wichita Falls & Southern		Fuel Oil		



Price Trends of Typical Items of Steel Used for Maintenance of Way and Structures

of industry's experiment in "self-government" under the N.R.A. Lumber producers were given a chance to "write their own ticket" and, from general appearances, write it they did.

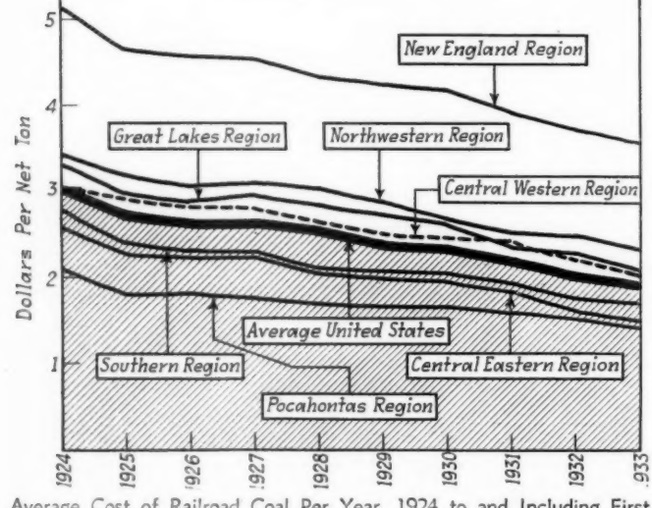
Despite the operations of a well-informed and organized association in the past, lumber prices kept declining until last June, reflecting a decline in lumber buying throughout the country that had caused widespread shut-downs in operations and competition from small operators, not members of associations, making it next to impossible for the railroads to say at what prices lumber could be bought. Under the code, which provided for the establishment of minimum prices at which every size and variety of lumber could be sold and bought, and also provided for the proration of operations to restrict production, with the avowed intention to raise prices, it was anticipated that substantial increases in prices would be made, and this, together with the prospect for inflation, caused a flood of orders which, for a time, overtaxed the mills. This caused a steady increase in prices and, when the codes were adopted, prices were advanced again.

By anticipating the situation, some succeeded in purchasing their requirements without added cost, thus saving railroads thousands of dollars and reducing the average cost to all the railroads in 1932. But, all the railroads were required to pay 25 to 50 per cent more since October than a year ago, while increases of from 75 per cent to 100 per cent in the published prices are not uncommon. For example, 9-in. by 18-in. by 30-ft. stringers, which previously cost $17 per 1,000 bd. ft. on the West Coast, are now costing the railroads a minimum price of $26.50, and 7-in. by 8-in. by 8-ft. cross ties, which previously cost $11 per 1,000 bd. ft., are now costing the railroads a minimum of $17.50, the word "minimum" being used advisedly because there are other provisions in the code which, unless and until adjusted, appear to compel the railroads to pay higher transportation rates than previously. Average prices are 50 per cent higher than they were last spring for car siding, 70 per cent higher on 6-in. by 6-in. fir timbers and bridge stringers, while the increases in Southern pine prices are only slightly less.

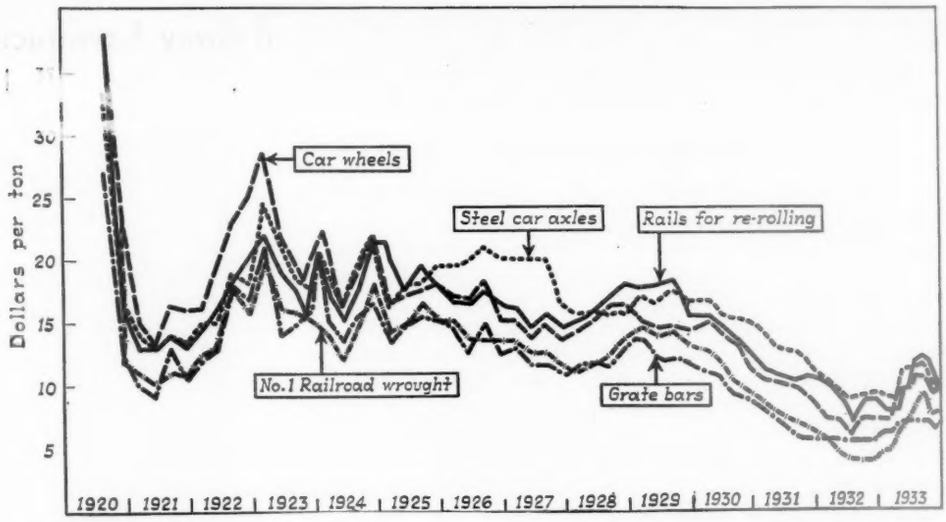
Cost Per Gallon of Fuel Oil for Locomotives—Class I Railroads*

	1924 Cents	1925 Cents	1926 Cents	1927 Cents	1928 Cents	1929 Cents	1930 Cents	1931 Cents	1932 Cents	1933† Cents
Great Lakes Region	5.83	5.98	5.81	5.86	3.81	3.51	4.19	3.90	2.95	3.04
Central Eastern Region	...	...	...	...	4.17	4.07	3.67	3.54	3.21	3.46
Eastern District	5.83	5.98	5.81	5.86	3.84	3.55	4.13	3.87	2.97	3.08
Southern Region	3.57	3.96	3.97	3.97	2.98	2.37	2.21	1.85	1.32	1.57
Southern District	3.57	3.96	3.97	3.97	2.98	2.37	2.21	1.85	1.32	1.57
Northwestern Region	2.86	3.32	3.01	3.00	2.94	2.71	2.49	2.12	1.90	1.80
Central Western Region	2.98	3.23	2.72	2.54	2.37	2.10	1.97	1.82	1.69	1.56
Southwestern Region	2.44	2.85	3.14	3.03	2.46	1.98	1.89	1.59	1.26	1.05
Western District	2.75	3.09	2.91	2.78	2.47	2.12	1.99	1.76	1.54	1.39
United States	2.78	3.13	2.95	2.81	2.48	2.12	2.00	1.77	1.55	1.40

* Invoice plus freight charges—I. C. C.
† 10 months.



Average Cost of Railroad Coal Per Year, 1924 to and Including First 10 Months of 1933



Price Trends of Railroad Scrap Items

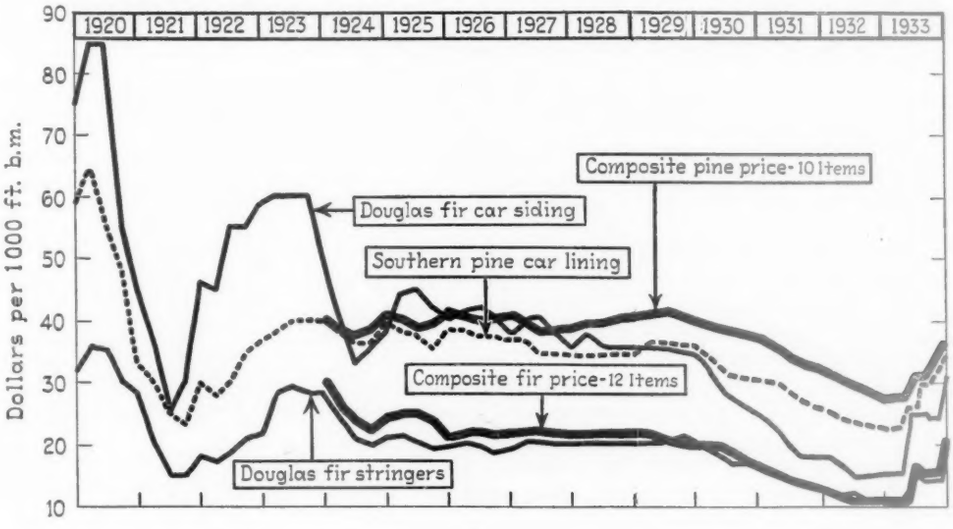
By contrast, bottom prices still prevail on Canadian timber, with the base price of common dimension stock in British Columbia, for example, at $7.50 per 1,000 bd. ft., as compared with $19 in Washington under the N.R.A. Although Canada's domestic trade is still dormant and her export of lumber to this country completely cut off by a tariff, it is noted that, with the aid of an embargo on Russian exports to British dominions, but also because of trade revival in foreign countries, Canadian production was increased 35 or 40 per cent over normal and 31 mills were in operation, as compared with 22 in 1932 and 40 in 1929. This was because of a record-breaking export business, calling for the shipment of 125,000,000 ft. to Australia which is as much as was shipped there in 1932; 250,000,000 ft. to the British Isles as compared with 108,000,000 ft. in 1932, 43,000,000 ft. to Japan in 9 months as compared to 60,000,000 ft. in 12 months previous, 91,000,000 ft. to China in 9 months as compared with 53,000,000 ft. in 12 months of 1932; 15,500,000 ft. to Africa in 9 months as compared to 5,500,000 in 12 months of 1932 and 7,000,000 ft. to Europe as compared to 650,000 ft. in 1932. This business was obtained in spite of the depreciation of the American dollar in foreign trade and government subsidies to American mills to engage in export. However, United States producers also enjoyed a considerable volume of export business last year and it was this export business which helped to sustain the code prices.

While American mills have experienced sharp reductions in business since the code was adopted and must now restrict their production in accordance with proration terms of the code, the opinion is general that published prices will be sustained or increased this year, concurrent with increased railroad buying.

Cross-Tie Prices

Many railroads did not purchase cross ties last year and for the most part the others again restricted their purchases to a small percentage of their former consumption. Also, a large part of the cross-tie production is obtained directly from small producers along the line of road, or from commercial concerns which in turn employ labor not solely dependent upon tie production for wages. During 1933 the relatively small purchases of the railroads and the rigors of the depression in the tie-producing areas continued to permit the railroads to secure most of their requirements at prices lower than in 1932. As an example, 7-in. by 9-in. by 8-ft. pine cross ties cost one road 66.4 cents each last October, as compared with 73.7 cents in 1932. They cost 80 cents and 90 cents, respectively, on another road, 44.6 cents and 53.56 cents on still another and 69.3 and 97 cents on a fourth road. Considering the fact that the tie code has recently been adopted and the further fact that throughout the country "easy money" distributed by the government under the relief act and the Civil Works Administration has compromised the interest of the average tie hewer in tie production, railroad ties from now on are expected to cost substantially more than heretofore.

Since last November, fir ties cost one western road 79



Trends of Typical Lumber Prices, Including Composite Values, Based on Mill Prices

cents as compared with 67.5 cents each last January, while one western road paid 97 cents for white oak ties as compared with 87 cents last January and an eastern road paid $1.16 as compared with 84 cents last January.

Miscellaneous Material

There is no well-defined trend of prices for miscellaneous materials purchased by the railroads, although increases were plentiful. They are particularly evident in the costs of non-ferrous metals. The average price paid for lead in 1933 exceeded that paid in 1932 by 18 per cent and the average increase since last January amounted to 30 per cent. Current prices for sheet copper are from 20 to 40 per cent higher than a year ago; journal bearings 50 per cent higher. Creosote oil, ranging from 6.5 to 11.8 cents per gal., is no higher in general than in 1932, but the trend is up, with one road paying 50 per cent more since last June and the net rise amounting to about 10 per cent.

Advances of 15 per cent have been prevalent in rope purchases, fire brick shows a net increase of 20 per cent over the prices prevailing a year ago, while advances of from 10 to 25 per cent have been paid for leather and rubber goods. Increases have been made in the cost of paint supplies, with a 10-per cent advance in white lead and a 20-per cent advance in linseed oil over a year ago, while cement costs have shown a continuation of the general advance which has occurred since 1931, with average costs for 1933 twenty-five per cent higher than in 1932 and current prices showing 15 per cent advances over a year ago.

The average price of miscellaneous materials advanced approximately 11 per cent since a year ago, although the average cost of miscellaneous supplies to the railroads is little if any higher than it was for the entire 12 months of 1932, owing to the relatively high prices which prevailed in the early months of 1932 and the relatively low prices which prevailed in the corresponding months of 1933.

Scrap Prices Make Big Gain

Railroads normally derive such large incomes from the sale of scrap iron (annual sales exceeding $30,000,000 in good times) that they are invariably interested in the prices paid for it. After having receded to the lowest levels known, much to the embarrassment of those who withheld scrap tonnage from sale rather than to sell it at prices offered in 1930 and 1931, scrap prices responded last year to the revival of steel mill operations and heavy export demands and regained much of their former strength. Contrary to experience in other material markets, scrap was highest in June and has since lost ground, but even the prices paid since October show increases of 50 to 100 per cent over those of a year ago. No. 1 railroad wrought, for example, sold for $6.16 since October on one road, as compared to $2.52 in January; $7.50 per ton since October as compared with $4.09 in January, on another road; the average price secured for this class of scrap since October on 13 roads amounting to $6.63 per ton as compared with $3.86 per ton a year ago. No. 1 heavy melting steel sold for $5.58 per ton since October, as compared with $2.52 a year ago on one road, brought $10.40 per ton as compared with $7.18 per ton on another road, while the average price since October, amounting to $7.32 on several roads, is compared with $5.58 per ton a year ago. One important factor that is operating to sustain and probably increase these prices substantially this year is the depreciated value of the dollar in the export market, which makes it attractive for European countries to obtain tonnage from this country.

Railway Construction in U. S.

(*Continued from page 138*)

over North branch of Susquehanna river, Rupert, Pa., $388,736 (40 per cent completed).

Southern Pacific

Important Work Undertaken: (Pacific Lines) Reconstruction of ferry slip at foot of Hyde street, San Francisco, Cal., $145,000 (completed). Reconstruction and strengthening of three steel viaducts at Honda, Cal., Narlon and Sacate, to permit the operation of Cooper's E-70 locomotives, $284,000 (completed). Construction of reinforced-concrete viaduct to eliminate grade crossing, San Carlos street, San Jose, Cal., $170,000 (completed). Reconstruction of track, roadbed and six steel bridges, Bena, Cal., to Mojave, to restore structures damaged by cloudburst, $581,000 (completed). Installation of heating facilities at fuel oil stations and in locomotive tenders to permit use of heavy residium oil for locomotive fuel, $600,000 (completed).

(Texas and Louisiana Lines) *First Track:* Olmos, Tex., to Quwmado Valley, 7.2 miles.

Important Work Undertaken: Construction of drawbridge over Harvey canal together with additional trackage, Harvey, La., $325,000 (completed). Construction of produce terminal, New Orleans, La., $453,000 (65 per cent completed—work deferred temporarily). Replacement of five 150-ft. steel spans over Devil's river with seven steel spans to increase length to 900 ft., Devil's River, Tex., $200,000 (completed). Construction of new passenger station, Houston, Tex., $2,340,000 (40 per cent completed).

Terminal Railroad Association of St. Louis

Important Work Undertaken: Construction of north approach to Municipal bridge over Mississippi river, East St. Louis, Ill., $1,720,000 (80 per cent completed).

Texas & Pacific

Important Work Undertaken: Construction of reinforced concrete and steel viaduct, to eliminate grade crossing at Summit avenue, Ft. Worth, Tex., $100,000 (completed).

Texas Pacific—Missouri Pacific Terminal Railroad of New Orleans

Important Work Undertaken: Construction of rolling-lift bridge and approaches, over Louisiana-Texas Intercoastal waterway, Harvey, La., $350,000 (98 per cent completed).

Union Pacific

Important Work Undertaken: (Oregon-Washington Railroad & Navigation Company). Purchase and filling of land, grading and laying 1,000 lin. ft. of track, to provide for industrial development, Seattle, Wash., $259,917 (completed).

Virginian

First Track: From M. P. 33 on Guyandot river line to Gilbert, W. Va., 11.07 miles.

War Department, United States Government

New Line Project: Wiota, Mont., to Ft. Peck dam, 14 miles, $140,000 (to be completed in 1934).

Railway Construction in Canada

Canadian National

Important Work Undertaken: Construction of new passenger station, St. John, N. B. (completed). Restoration of pier No. 4, bridge over St. John river, Fredricton, N. B. (completed). Elimination of grade crossings, Richmond and Wellington streets, London, Ont., (to be completed in 1934). Construction of new hotel, capacity 595 rooms, Vancouver, B. C. (completion indefinite).

Toronto, Hamilton & Buffalo

Important Work Undertaken: Grade crossing elimination between east portal of tunnel and Victoria avenue, including Canadian National, Hamilton, Ont., $2,900,000 (completed). Construction of new passenger station, Hamilton, Ont. (completed).

Railway Construction in Mexico

National Railways of Mexico

First Track: New connection, Tula, Hidalgo, to Pachuca, 2.18 miles.

Important Work Undertaken: Mexico-Tampico Short Line, 333.7 miles (23 per cent completed, 50.2 miles in operation—work suspended for the present). Gulf Coast Line, Tampico to Vera Cruz, 312.8 miles (16.7 per cent completed, 48 miles in operation—work suspended for the present).

Important Work Projected: (New lines authorized). Empalme del Oro to Sierra Mojada. San Carlos to Villa Acuña. El Salto to Mazatlan (Dūrango to Mazatlan extension).

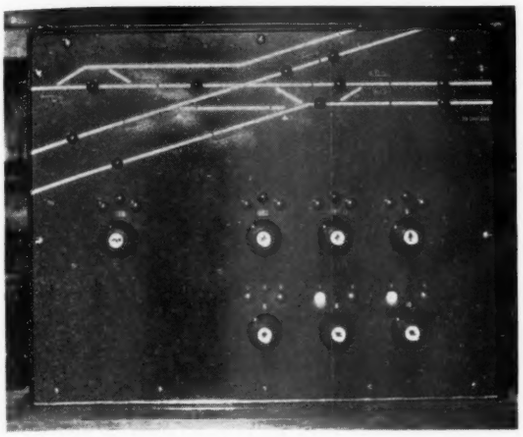
(New lines under survey). Soledad to Puerto de Tuxpan (location surveys completed). Aristeo to Apatzingan (location surveys completed).

(New lines projected). Sierra Mojada to Jimenez. Zacatecas and Berriozabal to La Honda. Rosario to Inde. Inde to Descubridora. Inde to Tepehuanes. Tepehuanes to Guanacevi. Puerto Mexico and Sta. Lucrecia to Campeche. Balsas to Acapulco. Tehuacan and Tezonapa to Rio Blanco. Balsas to Zihuatanejo. Coapa to Coyuca. Ejutla to Puerto Angel. Tlacolula to Tehuantepec.

Southern Pacific of Mexico

Important Work Undertaken: Construction of bridge across Rio Sonora near Hermosillo, Son., $500,000 (10 per cent completed).

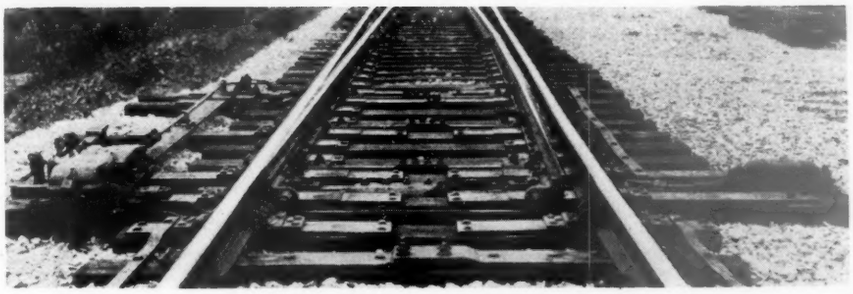
Signaling Construction During 1933



C. T. C. Type Control Machine at Albia, Iowa, on the Burlington Is Typical of Numerous Small Installations Completed During 1933

Volume of new work represents a 31 per cent increase as compared with that of previous year — Programs confined to projects effecting immediate savings in operating expenses

By J. H. Dunn
Signaling Editor, Railway Age



The Wabash Installed a Spring Switch at Birmingham, Mo., Equipped with the New Mechanical-Type Facing-Point Lock

ALTHOUGH railroad expenditures in general were curtailed in 1933 as never before, the volume of signaling placed in service increased 31 per cent over that for the previous year. However, in order that this statement may not be misleading, there should be added the further fact that the amount of signaling constructed during 1932 was limited, and the same is true of 1933. In the accompanying table, one unit is assigned each automatic signal, lever of interlocking, highway crossing signal, spring switch, etc. On this basis, the signaling placed in service in 1933 totaled

Comparison of Annual Signaling Construction

Number of Units Completed Each Year	1929	1930	1931	1932	1933
Automatic block signals	8,061	7,320	3,501	617	1,189
Highway crossing signals	2,505	2,984	2,368	879	1,001
Levers of interlocking	2,170	2,707	2,701	611	782
Levers added at rebuilt plants	403	619	162	124	106
Levers of remote and centralized control	584	839	653	93	159
Power-operated switches in remote and centralized control	309	607	412	63	67
Signals controlled in remote and centralized control	1,150	1,517	883	139	228
Signals in automatic interlockings	328	503	410	251	134
Spring switches	135	152	122	57	42
Number of retarders	221	98	41	3	3
Power switches in retarder yards	357	153	96	...	...
Total	16,223	17,499	11,349	2,837	3,711

3,711 units, as compared with 2,837 units for 1932, and the increase over the previous year is well distributed among the several items. In addition to the equipment listed, considerable signaling material was used to replace obsolete and worn out apparatus.

Except for a few large interlockings, such as that in the Cincinnati Union Station and 12 plants in the subways in New York, new construction was limited to comparatively small projects which were installed because the immediate saving effected in operating expense was large enough to show a liberal return on the expenditure. Among these installations, which form a few of the bright spots for 1933, may be mentioned the 19 automatic interlockings; highway crossing protection for 434 crossings, including 953 signals, 33 signs and 16 gates; and remote and centralized control, including 67 switches, 228 signals and 42 spring switches. The construction of regular interlocking included 29 plants, while automatic signaling was limited to 118 miles of road, a new low. Car-retarder construction was at a standstill during 1933, no new installations being made. However, one road, the Indiana Harbor Belt, added three General Railway Signal Company retarders in its yard at Blue Island, Ill. In the automatic train control field, activities were confined principally to the abandonment of such facilities or the substitution of cab signaling.

Signaling and Interlocking

Automatic block signaling was placed in service on 118 miles of road during 1933, as compared with 190 miles for the previous year. The Chesapeake & Ohio installed signals on 25 miles of double track, the remaining 93 miles being split up in small installations on 18 other roads. Of the 1,189 signals installed, 987 were on the subways in New York; of those installed on steam roads 25 were semaphore, 180 color-light, 1 position-light and 5 color-position-light.

This limited volume of construction reveals no trends as to the use of certain types of signals or systems of

power supply. The use of capacitors, to correct power-factor on lines supplying signaling systems, received considerable attention during 1933, the result being a decided saving in power costs. Modernization of obsolete signaling was carried on to a limited extent during 1933; for example, the Erie replaced semaphores on 15 miles of double-track line, and the Lackawanna entirely rebuilt the signaling on 146 miles of line. Likewise, during 1933 the Pennsylvania, as a part of the electrification program on its line between New York and Philadelphia, rebuilt the interlockings and replaced the automatic signaling, including cab signaling, on this territory.

The interlocking construction program for 1933 included 29 new plants involving 782 levers, as compared with 27 new plants including 711 levers for 1932. Of the new plants constructed last year, 5 were mechanical, 12 electric and 9 electro-pneumatic. At 14 other plants, which were rebuilt, a total of 106 new levers were added, making a total of 888 new levers of interlocking installed during 1933. In addition, a considerable number of plants were overhauled, semaphores being replaced with light signals, electric locking being installed, etc., as a part of the improvements. One of the most important interlockings placed in service during 1933 was that at the Cincinnati Union Station, this plant being of the electro-pneumatic type. This interlocking, with one control machine, handles the entire terminal layout. Twelve large interlockings were constructed on the subways in New York, seven of which are the electric type and five electro-pneumatic.

Because of the economies effected, the construction of automatic interlockings continued at a good rate, 19 such plants being completed in 1933, as compared with 35 the previous year. These new automatic plants included 134 signals and 3 power-operated switches. In most cases these automatic plants replaced mechanical interlockings, the savings effected by eliminating op-

Automatic Block Signals Completed During 1933

Road	Location	Miles of Road	Number of Signals	Manufacturer
B. & O.	Cumminsville, Ohio, to Cincinnati.	2.0d	5cp	Union
B. & M.	Beverly, Mass.	0.5d	2c	.....
	Kittery Jct., Me., to Jewett.	11.5s	8s	.....
B. of T., N. Y.	145th St., N. Y., to Webster Ave.	7.0t	286c	G.R.S.
	New York	...	4c	Union
	Hudson Term. to Jay St.	5.9s		
	Concord St. to Ave. C.	4.6d 1.6f	393c	Union
C. N.:				
G. T. W.	Sedley, Ind., to Valparaiso.	5.5s	9c	Union
C. P.	Hurdman, Ont., to C. N. R. Jct.	1.0s	2c	Union
C. & O.	White Sulphur, W. Va., to Whitcomb	7.0d	13c	Union
	Whitcomb, W. Va., to WR Cabin.	4.0d	2c	Union
	Hinton, W. Va., to CW Cabin.	2.0d	4c	Union
	Sewell, W. Va., to Stone Cliff.	8.0d	13c	Union
	Cotton Hill, W. Va., to Gauley.	4.0d	8c	Union
C. & E. I.	Thebes, Ill., to Bridge Jct.	1.0s	2s	Union
C. S. S. & S. B.	Replacements	...	2c	Union
D. & H.	Whitehall, N. Y.	3.0d	8c	G.R.S.
	Albany, N. Y.	1.0d	6c	G.R.S.
D. L. & W.	Port Morris, N. J.	0.3s 0.4d	3s	Union
Erie	Suffern, N. Y., to Newburgh.	13.0d	24c	Union
I. R. T.	New York	...	10c	Union
I. T.	St. Louis, Mo.	2.0d	10c	.....
Me. C.	Brunswick, Me.	0.5s	3s	Union
N. Y. C.	Replacements	...	55c	Union
N. Y. R. T.	Lefferts Ave. to Jamaica	4.3d	92c	G.R.S.
	Eighth Ave. to 86th St.	3.8d	22c	G.R.S.
	Tillary St. to Atlantic Ave.	4.6d	96c	G.R.S.
	Broadway to Adams St.	3.0d	75c	G.R.S.
N. Y. O. & W.	Replacements	...	1c	Union
P. E.	Naples, Cal., to Seal Beach.	1.2d	6c	Union
	Los Cerritos, Cal., to Cota.	0.5d	1c	Union
	Del Amo, Cal., to Cota.	0.5d	1c	Union
	Cota, Cal.	1.0s	2c	Union
Penn.	Carpenterville, N. J.	1.0s	1p	Union
Reading	Additions	...	5c	Union
U. P.	Additions	...	4c	Union
Wabash	Brunswick, Mo.	2.2d	2c	Union
W. M.	Conboy, Pa., to Brandon.	7.9s	4s	Union
W. of A.	Boylston, Ala., to Montgomery.	2.6s	5s	Union
		38.2s	25s	
		71.6d	1,158c	
		7.0t	5cp	
		1.6f	1p	
		118.4	1,189	

Legend:
In "Miles of Road" column: s = Single track. d = Double track. t = Three tracks. f = Four tracks or five tracks.
In "No. of Signals" column: s = Semaphore. c = Colorlight. p = Position-light. cp = Color-position-light.

Automatic Interlockings Completed During 1933

Road	Location	Number of Track on Reporting Road	Number of Tracks on Other Road	Number of Signals	Manufacturer
A T. & S. F.	Chillicothe, Tex.	1	2	11	Union
	Stafford, Tex.	1	1	5	.....
A. C. L.	Baldwin, Fla.	..	..	8	Union
	Zephyrhills, Fla.	..	..	4	Union
C. B. & Q.	Miner, Wis.	..	..	10	.....
C. & N. W.	Lake Mills, Ia.	..	..	8	.....
D. L. & W.	Painted Post, N. Y.	2	1	8	Union
Erie	Erwins, N. Y.	1	2	8	Union
G. N.	Atwater, Minn.	..	..	4	.....
	Pennock, Minn.	..	..	4	.....
N. P.	Philbrook, Minn.	..	..	3*	G.R.S.
	Bloom, N. D.	..	..	3*	G.R.S.
	Velox, Wash.	..	..	3*	G.R.S.
	Brady, Wash.	..	..	5	G.R.S.
S. A. L.	Tulane, Fla.	..	..	8	Union
	Mabel, Fla.	..	..	8	Union
U. P.	Portal, Neb.	..	..	8	.....
	Northport, Neb.	..	..	8	.....
	Blakeslee, Wash.	..	..	18	.....
Totals, 19 plants				134	

*Includes power switch machines.

Interlocking Plants Completed During 1933

Road	Location	Manufacturer	Lever Capacity of Frame	Working Levers: Mechanical	Electric	Electric Pneumatic	Elec.-Mech.: Mech.	Elec.
A. C. L.	Uceta, Fla.	Union	2	2	..	..	..	..
	Tifton, Ga.	Union	4	4	..	..	..	..
B. & O.	Cumminsville, Ohio	G.R.S.	24	..	15	..	..	..
B. of T., N. Y.	Concourse Yard	G.R.S.	80	..	74	..	..	..
	Perry Ave.	G.R.S.	28	..	22	..	..	..
	Bedford Park	G.R.S.	60	..	54	..	..	..
	Fordham Rd.	G.R.S.	28	..	20	..	..	..
	Tremont Ave.	G.R.S.	40	..	32	..	..	..
	167th St.	G.R.S.	32	..	24	..	..	..
	161st St.	G.R.S.	28	..	17	..	..	..
	Church Ave.	Union	47	..	..	36	..	..
	Jay St.-Borough Hall	Union	35	..	..	28	..	..
	4th Ave.	Union	27	..	..	21	..	..
	Bergen St.	Union	35	..	..	28	..	..
C. & E. I.	Woodland Jct., Ill.*		16	16	..	..	..	..
C. U. T.	Cincinnati, Ohio	Union	231	..	..	187	..	..
	"C" Tower, Cinn.*	Union	8	4	..	..	..	..
C. B. & Q.	LaSalle, Ill.*	Union	4	4	..	..	..	..
	Ottawa, Ill.*	Union	4	4	..	..	..	..
B. & M.	Worcester, Mass.		16	12	..	..	..	..
	Somerville, Mass.		..	..	2	1	..	..
C. N.	Coteau, Que.	G.R.S.	7	..	7	..	..	..
C. & O.	Alderson, W. Va.*	Union	4	..	..	..	..	2
	Hilldale, W. Va.*	Union	31	..	5	..	..	..
	Ronceverte, W. Va.	Union	30	..	6	..	..	..
	White Sulphur, W. Va.*	Union	..	..	..	..	1	1
	Hinton, W. Va.*		..	..	..	..	..	..
	Stone Cliff, W. Va.*		..	..	..	..	..	..
C. R. I. & P.	Joliet, Ill.		2	..	2	..	..	..
Erie	Lima, Ohio	Union	36	32	..	..	..	..
Hud. Man.	Grove St.	Union	27	..	..	24	..	..
L. V.	Newark, N. J.*	G.R.S.	8	..	10	..	..	..
N. Y. C.	Croton, N. Y.	G.R.S.	80	..	52	..	..	..
	Hudson, N. Y.*	G.R.S.	36	..	..	..	..	..
	Porter, Ind.†	G.R.S.	..	54	..	..	..	..
N. Y. R. T.	Brooklyn, N. Y.*	G.R.S.	..	..	2	..	..	..
Penn.	Paoli, Pa.	Union	56	..	..	14	..	..
			23	..	..	..	..	..
	Altoona, Pa.	Union	27	..	..	11	..	..
			11	..	..	..	..	..
	Beechwood, N. J.	Union	8	8	..	..	..	..
	Sunnyside, N. Y.*	Union	71	..	..	3	..	..
	Valley Stream, N. Y.	Union	35	..	..	28	..	..
T. & P.: M.P.-T.P. Term.	Harvey, La.	G.R.S.	20	..	17	..	..	..
U. P.: O. S. L.	Penn St. "J" Jct.	Union	2	..	2	..	..	..
Totals:								
Levers	New			58	346	378	0	0
	Added			82	17	3	1	3

	Plants	Levers
New	29	782
Rebuilt	14	106
		888

* Existing plant at which additional levers were added and in many cases entire plant rebuilt.
† New interlocking machine and lead-out installed.

erators being sufficient to pay for the improvements in from one to three years.

Remote and Centralized Control

In the field of centralized traffic control, including remote control, construction increased during 1933, a total of 29 installations involving 67 power switches and 228 signals being placed in service, as compared with 20 installations involving 61 power switches and 215 signals in 1932. None of the c.t.c. installations placed in service in 1933 involved much mileage, the majority of the projects including the consolidation of interlockings or the control of end-of-double track or junction switches, the purpose being, in most cases, to eliminate operators and thus to reduce operating expenses as well as to facilitate train movements.

Interwoven in many of these improvement programs were relocations of signals at crossover layouts or junctions, all of which work was done with the idea ultimately of installing centralized traffic control over an entire division. For example, one road now has all of the signals on 142 miles of double track changed over to color-lights, so located as to direct trains in either direction on both tracks, and, by installing power switches, enabling the whole division to be operated under centralized traffic control.

By means of centralized traffic control, existing tracks

Highway Grade Crossing Protection Installed in 1933

Road	No. of Crossings Protected	No. of Wig-Wag Signals	No. of Flashing-Light Signals	No. of Rotating Stop Sign Signals with Flashing Lights	No. of Traffic Type Stop and Go Signals	No. of Electrical Operated Gates
Alton	4	..	8	..	..	..
A. & S.	3	..	6	..	..	..
	1	..	2†	..	..	..
A. A.	4	..	8	..	..	..
A. T. & S. F.	30	38	..	..	..	..
B. & O.	10	..	21	..	..	..
	1	..	2†	..	..	..
B. R. of C.	1	..	2	..	..	..
B. & L. E.	3	..	7*	..	..	..
B. & M.	8	..	16	..	..	..
C. N.	7	..	2	..	..	..
G. T. W.	1	..	2*	..	..	..
	2	..	4†	..	..	..
	3	..	5†	..	..	..
C. P.	3	3	2	..	..	..
C. of G.	1	..	1	..	..	..
C. of N. J.	3	..	6	..	..	..
	1	..	2†	..	..	..
C. V.	3	..	6†	..	..	..
	5	..	10	..	..	..
C. & O.	6	..	14	..	..	..
C. & E. I.	2	..	4	..	..	..
	2	..	4†	..	..	..
C. & I. M.	2	..	4	..	..	..
C. & N. W.	7‡	..	..	..	..	..
	7	13	..	..	..	..
	1	..	2†	..	..	..
	3	..	6	..	..	..
	1	..	..	2	..	..
C. & W. I.	1	..	2*	..	..	4
C. B. & Q.	2	..	..	..	..	2
	3	..	8	..	..	..
C. G. W.	1	..	2	..	..	..
C. M. St. P. & P.	5	6	..	..	..	..
	2	..	4†	..	..	..
	1	..	2	..	..	..
	8	..	..	16	..	..
C. St. P. M. & O.	1	..	..	2	..	..
C. S. S. & S. B.	1	..	1†	..	..	..
C. & S.	1	..	2	..	..	..
	1	..	2†	..	..	..
D. & H.	2	..	4†	..	..	..
	..	..	§73†	..	..	..
D. L. & W.	1	..	2	..	..	..
	4	..	8†	..	..	..
D. & M.	4	..	8	..	..	..
D. T.	4	..	8	..	..	..
D. & T. S. L.	6	..	12	..	..	..
D. T. & I.	1	..	2†	..	..	..
E. J. & E.	2	..	4*	..	..	..
Erie	6	12	..	..	..	..
	19	..	42†	..	..	..
Ga. R. R.	2	..	4	..	..	..
G. N.	2	..	..	4	..	..
I. C.	1	..	2	..	..	..
	5	..	10†	..	..	..
	1	..	..	..	..	4
I. U.	3	..	3*	..	..	..
K. C. S.	1	..	2	..	..	..
K. & I. T.	5	..	10	..	..	..
L. S. & I.	1	1	..	..	..	..
	4	..	9†	..	..	..
L. & H.	2	..	4†	..	..	..
L. & N. E.	7	..	11†	..	..	..
L. V.	3	..	26†	..	..	..
L. & P. S.	1	2	..	..	..	..
L. & N.	2	..	2	..	..	2
Me. C.	13	..	25	..	..	..
Mex. Nat.	10	..	20*	..	..	..
M. & St. L.	3	..	..	2	2	..
M. St.P. & S. S. M.	3	2	2	2	..	..
D. S. S. & A.	1	..	2†	..	..	..
M-K-T	1	..	2†	..	..	..
M. P.	8	..	18*	..	..	..
	1	..	..	..	..	4
I. G. N.	5	..	12	..	..	..
Montour	5	..	10	..	..	..
N. C. & St. L.	2	..	4†	..	..	..
N. Y. C.	5	..	12†	..	..	..
B. & A.	3	..	4†	..	4	..
C. C. C. & St. L.	1	..	2	..	..	..
	10	..	..	..	¶20	..
P. & E.	1	..	2	..	..	..
M. C.	2	5	..	..	..	..
	3	..	8†	..	..	..
I. H. B.	2	..	4*	..	..	..
	1	..	2†	..	..	..
Rutland	2	..	4†	..	..	..
N. Y. C. & St. L.	3	..	2*	..	..	..
	..	..	2	..	..	..
N. Y. O. & W.	2	..	4†	..	..	..
N. P.	1	..	..	2	..	..
	6	..	12	..	..	..
N. W. P.	1	1	..	..	..	..
P. E.	6	8	..	..	..	..
Penn.	34	..	111†	..	..	..
	..	..	23*	..	..	..
	..	..	28	..	..	..
P. & P. U.	7	14	..	..	..	..
P. M.	7	2	5†	..	..	..
Reading	6	..	15	..	..	..
St. L.-S. F.	2	1	2*	..	..	..
S. A. L.	2	..	5†	..	..	..
S. P.	17	21	..	6	7	..
T. & P.	3	..	6†	..	..	..
T. P. & W.	1	..	2*	..	..	..
	2	..	4	..	..	..
U. P.						
O. W. R. & N.	1	1	..	..	..	..
L. A. & S. L.	6	8	..	2	..	..
Wab.	1	..	2*	..	..	..
W. P.	1	1	..	..	..	..
W. & L. E.	2	..	4†	..	..	..
	434	139	396†	38	33	16
			91*			
			288			
			775			

* New A. R. A. automatically-controlled illuminated STOP sign used in conjunction with regular wig-wag or flashing-light signal.
† New A. R. A. button-type reflector sign reading "Stop on Red Signal" used in conjunction with regular wig-wag or flashing-light signal.
‡ Bells only.
§ Signs installed.
¶ Metal crossbuck signs with canary-yellow button reflectors.

Spring Switches Installed During 1933

Road	Location	Number
A. T. & S. F.	Bovina, Tex.	1
	Wilsey, Tex.	2
	Springer, N. M.	1
A. C. L.	Union Jct., Ga.	1
B. & M.	Somerville, Mass.	2
	Portsmouth, N. H.	1
C. of Ga.	Oakland, Ga.	1
	Hapeville, Ga.	1
C. M. St. P. & P.	Indian Creek, Ia.	1
	Rockton, Ill.	1
	Marquette, Ia.	1
C. & O.	Roceverte, Va.	1
	Westham, Va.	1
C. B. & Q.	Galesburg, Ill.	1
C. R. I. & P.	Clio, Ia.	1
C. G. W.	St. Paul, Minn.	1
D. L. & W.	Port Morris, N. J.	4
G. N.	Wilmar, Minn.	1
I. C.	Kuttawa, Ky.	1
L. & N.	Brentwood, Tenn.	1
M. P.	Hoisington, Kan.	1
Penn.	Duff, Pa.	1
St. L.-S. F.	St. John, Mo.	1
	West Lebanon, Mo.	1
	Tulsa, Okla.	1
S. P.	Pacific	2
	Harvey, La.	1
	Hadley, Cal.	1
	Rye Patch, Nev.	1
U. P.	Northport, Neb.	3
O. W. R. & N.	Blakeslee Jct., Wash.	3
Wabash	Birmingham, Mo.	1
Total		42

can be used effectively to handle the traffic as it gradually returns to normal and increases beyond previous records. Likewise, where circumstances have so changed that it is not likely that traffic will return to the former volume, signaling and centralized traffic control can be used to operate trains on fewer tracks, such as reverting to single track on sections of existing double track, and thereby eliminating the expense of maintaining the extra track.

In some instances the operating problem at these outlying switches was solved by the installation of spring switches, a total of 42 such switches being equipped during 1933, as compared with 57 in 1932. A spring switch lock, operated automatically by the train itself, was developed during 1932 and was installed on about six switches during 1933. The combination of spring switches with controlled signals for directing train movements over short stretches of track, to replace manual block or staff systems, received attention on several roads, the Milwaukee, the Grand Trunk Western, and the Chesapeake & Ohio having made several such installations during the year. It is interesting to note that the railroads of Europe are interested in the centralized traffic control system developed in America, the French railways having ordered from the Union Switch & Signal Company a 60-lever c.t.c. machine, together with 22 power switches and 24 signals, for installation at Houilles A Sartrouville, in the vicinity of Paris.

Several of the states now require that new crossing signals be equipped with the new signs adopted by the A. R. A. Joint Committee on Highway Crossing Protection, while certain roads have voluntarily equipped signals with these signs. Of the 139 wig-wags installed in 1933, only one was equipped with the new "Stop on Red Signal" button-type sign. Of the 775 flashing-light crossing signals, 91 were equipped with the automatically-controlled illuminated "Stop" sign, and 396 were equipped with the "Stop on Red Signal" button-type reflector sign. One road, the Delaware & Hudson, installed reflector signs on 73 existing flashing-light signals.

Remote and Centralized Control Installations Completed During 1933

Road	Location	Miles of Road	Manufacturer	Number of Levers: Desk Type	Number of Levers: C.T.C. Type	Power Operated Switches	Number of Signals Controlled
Alton	Rinaker, Ill., to Plainview	8.3s	.....	1	..	..	4
A. T. & S. F.	Neva, Kan.	....	Union	..	..	...	..
B. & O.	Aberdeen, Md., to Aitkins	7.0d	.....	..	2	..	2
B. & M.	Shelburne Falls, Mass.	0.8s	.....	..	..	..	1
C. N.: G. T. W.	Sedley, Ind., to Valparaiso	5.3s	Union G.R.S.	2	..	..	4
C. M. St. P. & P.	Beloit, Wis., to Rockton	1.7s	Union	..	2	..	4
C. & O.	Richmond, Va., to Highland Park	1.5s	Union	..	4	..	5
	Balcony Falls, Va., to AY	3.0d	Union	1	..	..	4
	White Sulphur, W. Va.	....	.....	2	..	..	..
	Ronceverte, W. Va., to Whitcomb	4.0d	Union	..	13	6	15
	Alderson, W. Va.	....	Union	2	..	1	3
	Hilldale, W. Va., to Talcott	3.0d	Union	12	..	4	12
	Griffith, Ind.	1.0s	Union	3	..	..	5
C. B. & Q.	Albia, Ia., to Maxon	6.0s	G.R.S.	..	8	4	12
	Chariton, Ia., to Harrison	3.5d	Union	..	8	1	15
D. & H.	Whitehall, N. Y.	1.0d	G.R.S.	..	2	1	6
	Plains Jct., Pa.	2.0d	G.R.S.	1	..	..	4
L. V.	Van Etten, N. Y.	....	G.R.S.	..	8	3	7
L. & N.	Brentwood, Tenn.	....	Union G.R.S.	..	1	1	3
	Henderson, Ky.	....	G.R.S.	2	..	..	3
Phil. Sub.	Philadelphia, Pa.	....	Union	..	13	4	10
P. E.	Del Amo, Cal., to Los Cerritos	0.2s 1.2d	Union	1	..	4	6
Penn.	Grier, Pa.	1.1s	Union	9	4E	3	18
	Swede, Pa.	1.1d	Union	..	4E	3	6
	Caln, Pa.	1.7t	Union	..	9EP	7	9
	Deer, Pa.	2.2t	Union	..	9EM	6	11
	Wilmington, Del.	1.8d	Union	8	..	5	12
	Clare, Ohio	2.1d 9.1s	Union	..	26	13	36
U. P.: O.-W. R. R. & Nav. Co.	St. Johns, Ore., to Peninsula Jct.	2.1s	Union	2	..	1	11
	Totals	37.1s 29.7d 3.9t		46	113	67	228

Legend:
In "Miles of Road" column: s = Single track. d = Double track. t = Three tracks.
In "C.T.C. Type" column: E = Electric levers. EP = Electro-pneumatic. EM = Electro-mechanical.

Train Control and Cab Signals

Activities in the automatic train control field during 1933 have consisted principally in the abandonment of such facilities or the substitution of cab signals. Several roads equipped new or additional locomotives or multiple-unit cars with automatic train control. For example, the Pennsylvania so equipped its new electric locomotives, involving approximately 100 sets of the Union coded-type of cab signaling locomotive apparatus, and the Hudson & Manhattan installed Union cab signaling on 32 multiple-unit cars.

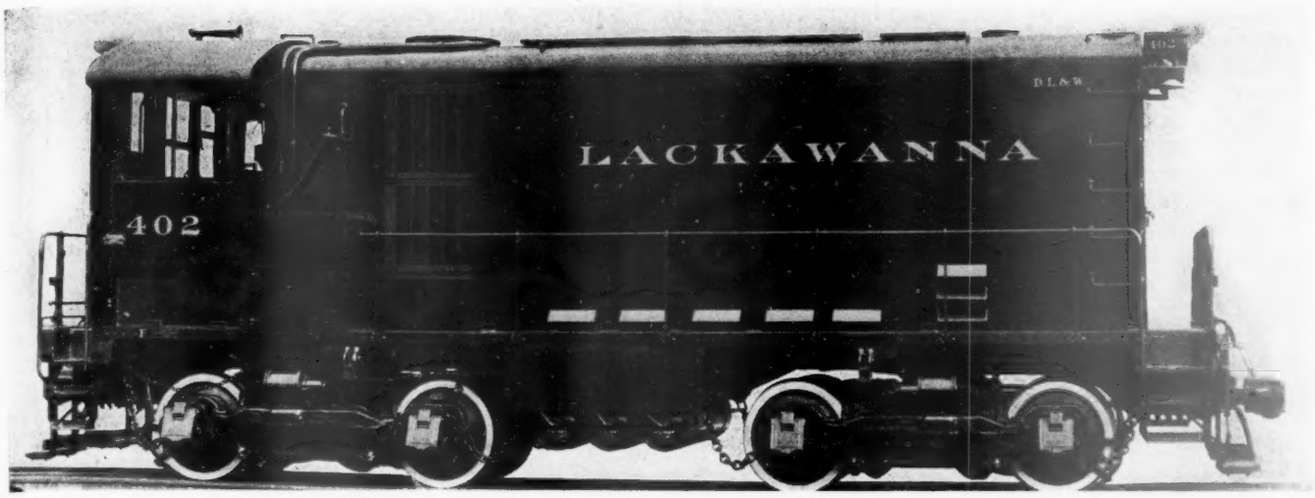
During 1933, the Interstate Commerce Commission granted the petitions of six roads, using the intermittent systems, to discontinue the maintenance and operation of such equipment. One road was permitted to discontinue the automatic brake application equipment but to continue the continuously-controlled cab signaling, while another road, using the continuous system, has eliminated the brake application equipment but continued the cab lights as cab indicators.

Roads Permitted to Remove Train Control

Road	Track Miles	Locomotives Equipped	Year Granted	Remarks
Alton*	203	55	....	
B. & M.	203	157	1933	Continuous cab indicators continued
C. B. & Q.	244	86	1932	
C. I. & L.	161	50	1933	
C. R. I. & P.†	243	..	1933	
D. & H.	279	161	1933	
G. N.	256	76	1932	
M. P.	53	43	1933	
N. & W.	242	75	1933	Continuous cab signals continued
N. P.	216	52	1932	
Penna.	1,390	1,108	1932	Continuous cab signals continued
S. P.‡	157	..	1933	
T. & N. O.	160	71	1933	
U. P.	450	140	1932	Continuous cab signals continued

*Petition presented but not yet granted.
†Train control discontinued on second territory from Des Moines, Iowa, to Davenport, first territory Davenport to Chicago remains in service.
‡Train control on territory from Pittsburgh, Cal., to Fresno, 157 miles, discontinued but train control is continued in service on territory from Oakland, Cal., to Tracy.

DECEMBER SHIPMENTS OF RAILROAD LOCOMOTIVES from the principal manufacturing plants in the United States, as reported to the Bureau of Census, totaled eight locomotives as compared with two in November and six in December, 1932. Shipments of 26 locomotives were reported for the full year, 1933, as compared with 105 in 1932 and 166 in 1931. Unfilled orders at the end of December totaled 74 locomotives, including 72 electric and two steam. These figures do not include statistics on locomotives produced by railroad companies in their own shops.



A 600-Hp. Diesel-Electric Switching Locomotive, Built by American Locomotive Company

Locomotives Ordered in 1933

With domestic total of 42, last year is better than 1932 but is second only to latter as poorest year on record

By Walter J. Taft,
Associate Editor, Railway Age

LOCOMOTIVES ordered during 1933 for domestic service in the United States totaled only 42—17 steam, 20 oil-electric, two gasoline-electric, and three gasoline. Thus, while it was somewhat better than that of 1932, the 1933 locomotive business was nevertheless so small as to make last year the runner-up of its immediate predecessor for the doubtful distinction of being the poorest business year on record in the accompanying tables which are continuous back to 1901.

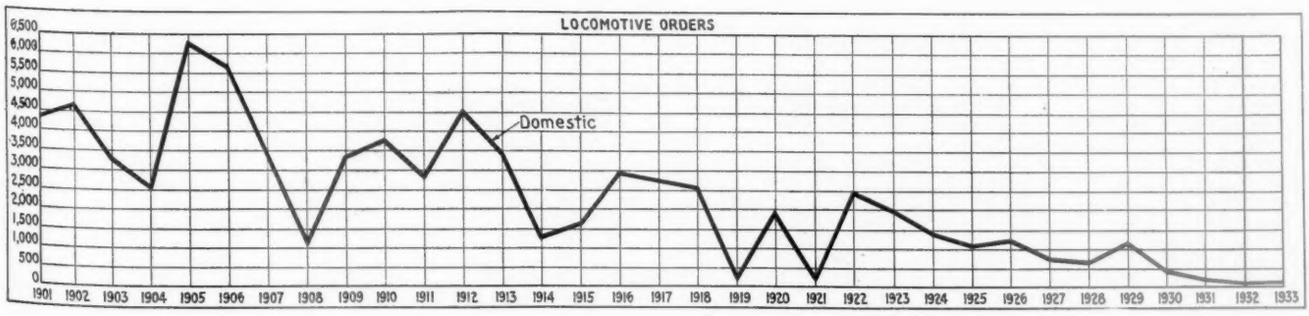
The largest steam locomotive order of the year was that placed by the Northern Pacific for 10 of the 4-8-4 type for passenger service. The Delaware, Lackawanna & Western, the largest 1933 buyer of other than steam locomotives, purchased 12 oil-electrics.

The 1933 domestic total of 42 compares with domestic orders in 1932 for 12 locomotives—five steam and seven of other types. Furthermore, steam locomotive builders fared somewhat better than in 1932 since all 1933 orders were placed with outside builders whereas in 1932 the only railroad in this country to purchase steam locomotives placed the order with its own shops. Beyond this comparison with each other, any discussion of the past two years' business in relationship to that of prior years serves, as was pointed out in this article last year, only to dramatize the amazing extent of the decline. The total business of the past two years, as measured by units ordered, is, for example, less than 25 per cent of the 1931 business, which, in turn, was only about 20 per cent of the average annual business for the 1922-1931 decade. While the factor has been unimportant in the past two years it should nevertheless again be pointed out, to those comparing the more recent with the more remote years listed in the accompanying tabulation, that modern locomotives are far more powerful and far more costly than those of the days when yearly orders totaled thousands.

Table I—Locomotive Orders in 1933

For service in the United States	42
For export to other countries	7
For service in Canada	..
Grand total	49

Seven locomotives were ordered in the United States



Locomotive Orders From 1901 to 1933

for export last year; six were steam locomotives and the other a gasoline-mechanical. This compares with the one locomotive ordered here for export in 1932 and with export orders for 28 in 1931 and 20 in 1930.

Reports from Canada reveal that in 1933, again as in 1932, Canadian railroads absented themselves from the locomotive markets. Canadian builders have received orders for only three locomotives since 1930 which year brought them orders for 95. In 1931 the Canadian National purchased an oil-electric and the Canadian Pacific a steam locomotive while in 1932 one locomotive was ordered in Canada for export to Brazil.

The persistence of unprecedentedly poor locomotive markets throughout 1933 is of course due to the fact that recovery in railway traffic and earnings, which was resumed last spring, after being interrupted by the banking moratorium, did not, during the remainder of last year, reach the point where deferred locomotive purchases could be converted into current orders with the normal ease of financing. The outlook is now more

Table II—Orders for Locomotives Since 1901

Domestic Orders Only

Year	Locomotives	Year	Locomotives
1901	4,340	1908	1,182
1902	4,665	1909	3,350
1903	3,283	1910	3,787
1904	2,538	1911	2,850
1905	6,265	1912	4,515
1906	5,642	1913	3,467
1907	3,482	1914	1,265

Domestic and Foreign

Year	Domestic	Canadian	U. S. Export	Total
1915	1,612	...	850	2,462
1916	2,910	...	2,983	5,893
1917	2,704	...	3,438	6,142
1918	2,593	209	2,086	4,888
1919	214	58	898	1,170
1920	1,998	189	718	2,905
1921	239	35	546	820
1922	2,600	68	131	2,799
1923	1,944	82	116	2,142
1924	1,413	71	142	1,626
1925	1,055	10	209	1,274
1926	1,301	61	180	1,542
1927	734	58	54	846
1928	603	98	27	728
1929	1,212	77	106	1,395
1930	440	95	20	555
1931	235	2	28	265
1932	12	1 (Export)	1	14
1933	42	...	7	49

Prior to 1918, Canadian orders included under "Domestic."

Table III—Locomotives Built in 1933

	United States	Canada	Total
Domestic	57	..	57
Foreign	6	..	6
Total	63	..	63

Comparison with Previous Years

Year	Domestic	Foreign	Total	Year	Domestic	Foreign	Total
1896	866	309	1,175	1913†	4,561	771	5,332
1897	865	386	1,251	1914†	1,962	273	2,235
1898	1,321	554	1,875	1915†	1,250	835	2,085
1899	1,961	514	2,475	1916†	2,708	1,367	4,075
1900	2,648	505	3,153	1917†	2,585	2,861	5,446
1901	....	...	3,384	1918†	3,668	2,807	6,475
1902	....	...	4,070	1919†	2,162	1,110	3,272
1903	....	...	5,152	1920†	2,022	1,650	3,672
1904	....	...	3,441	1921†	1,185	638	1,823
1905*	4,896	595	5,491	1922†	1,303	231	1,534
1906*	6,232	720	6,952	1923†	3,505	280	3,785
1907*	6,564	798	7,362	1924†	1,810	226	2,036
1908*	1,886	456	2,342	1925†	994	291	1,285
1909*	2,596	291	2,887	1926†	1,585	185	1,770
1910*	4,441	314	4,755	1927†	1,009	167	1,176
1911*	3,143	387	3,530	1928†	636	111	747
1912†	4,403	512	4,915				

*Includes Canadian output.
†Includes Canadian output and equipment built in railroad shops.

	United States			Canada			Grand total
	Domestic	Foreign	Total	Domestic	Foreign	Total	
1929	926	139	1,065	96	..	96	1,161
1930	972	51	1,023	111	..	111	1,134
1931	181	17	198	24	..	24	222
1932	102	18	120	2	1	3	123
1933	57	6	63	..	..	..	63

Locomotive Orders in 1933

For Service in the United States

Purchaser	No.	Type	Service	Weight	Tractive force	Cylinders	Date of order	Date of delivery	Builder
Durham & Southern	1	2-10-0	Freight	212,000	46,512	24 x 28	June	September	Baldwin
Farrell, Hunter T.	1	2-6-0	Sw.	151,000	32,500	20 x 26	February	August	Baldwin
Inland Steel	1	....	Sw.	140,000	30,415	19 x 24	August	November	Porter
Northern Pacific	10	4-8-4	Pass.	477,400	69,800	28 x 31	December	July, '34	Baldwin
Okmulgee Northern	1	2-8-0	Freight	137,000	29,900	19 x 26	October	December	American
Philippine Ry.—Utilities Pur.	1	2-6-0	Fr. & P.	114,200	23,600	17 x 24	May	August	Baldwin
Texas Company	1	0-4-0	Sw.	50,000	10,500	12 x 16	November	December	Davenport
Weyerhaeuser Timber Co.	1	2-8-8-2	Logging	354,000	75,000	23 & 35 x 28	August	December	Baldwin

Export

Purchaser	No.	Type	Service	Weight	Tractive force	Cylinders	Date of order	Date of delivery	Builder
Lone Star Cement Co.	2	0-4-0	Sw.	53,000	11,700	12 x 18	May	June	American
Sunning Ry.-And., M. & Co.	2	2-6-0	Fr. & P.	99,700	17,400	16 x 24	September	May, '34	Baldwin
United Fruit-Santa Marta	2	2-8-2	Freight	125,000	22,900	16 x 20	June	Nov.-Dec.	Baldwin

Oil-Electric, Gas-Electric or Gasoline Locomotives

For Service in the United States

Purchaser	No.	Wheel arrangement	Service	Type	Weight	Horsepower	Date of order	Date of delivery	Builder
Beaver Valley	1	....	Sw.	Gasoline	60,000	250	September	October	Le Roi-Fate-R.-H.
Chicago, Burlington & Quincy	3	0-4-4-0	Sw.	Oil-Elect.	130,000	460	April	1933-'34	Gen. E.-Mid-W.-Cumm.
Delaware, Lackawanna & Western	6	0-4-4-0	Sw.	Oil-Elect.	203,000	600	June	November	G. E.-Amer. McI. & Sey.
	2	0-4-4-0	Sw.	Oil-Elect.	203,000	600	September	Jan., '34	G. E.-Amer. McI. & Sey.
	3	0-4-4-0	Sw.	Oil-Elect.	208,000	600	June	December	Gen. Elec.-I. Rand
	1	0-4-4-0	Sw.	Oil-Elect.	208,000	600	September	Feb., '34	Gen. Elec.-I. Rand
Donner Hanna Coke Corp.	1	0-4-0	Sw.	Gas-Elect.	60,000	170	September	September	Gen. Elec.-Mack
Draper Corporation	1	....	...	Gasoline	60,000	...	July	.....	Fate-R.-H.
Hillsboro & Northeastern	1	....	...	Gasoline	70,000	...	November	.....	Fate-R.-H.
Northampton & Bath	1	0-4-4-0	Freight	Oil-Elect.	220,000	800	March	July	West.-Baldwin
U. S. Navy	2	0-4-0	Sw.	Oil-Elect.	73,000	265	April	December	West.-Atlas
U. S.—War Dept.	1	0-4-0	Sw.	Gas-Elect.	50,000	60	May	June	Fate-R.-H.
Westinghouse	1	0-4-4-0	Freight	Oil-Elect.	220,000	800	June	September	Co. Shops-Baldwin
	1	0-4-4-0	Freight	Oil-Elect.	220,000	800	September	March, '34	Co. Shops-Baldwin

Export

Purchaser	No.	Wheel arrangement	Service	Type	Weight	Horsepower	Date of order	Date of delivery	Builder
Mexican Railway	1	0-4-0	Sw.	Gas. Mech.	8,000	40	September	October	Whitcomb-Hercules

hopeful. The 1933 freight car loading curve, which in May crossed the 1932 line, has since remained above the latter, and, as a consequence, earnings reports have been proportionately better. A prospective immediate stimulant for locomotive markets is the allotment of Public Works Administration funds to railroads, some of which plan to apply part of the proceeds of such loans to the purchase of new motive power. Of the $77,000,000 allotted to the Pennsylvania, for example, approximately $15,000,000 will be used for the purchase of 101 electric locomotives.

Locomotives built in 1933 for service in the United States, as distinguished from those ordered, totaled 57, including six steam, 36 electric, and 15 of other types. This figure, comparing with the 1932 total of 102, represents the smallest production recorded in Table III which is continuous back to 1905. Locomotives built in the United States for export during 1933 totaled six as compared with 18 in 1932 and 17 in 1931. Like the domestic total, this 1933 figure on production for export is the lowest on record. No locomotives were built in Canada last year; three were built there in 1932 and 24 in 1931.

The distinction between locomotives ordered and the number built should be emphasized. A locomotive is under construction for several months and thus locomotive production figures for any year naturally include some units which were ordered during the closing months of the year previous to that under review. It is this overlap from year to year that results in a total production figure different from the total ordered.

The Car Service Division of the American Railway Association reports monthly totals of locomotive installations and retirements. These figures will not agree with the *Railway Age* totals of locomotives ordered or built, because the Car Service Division total covers only Class I carriers, whereas the *Railway Age* figures cover all carriers, and also industrial users.

The details in the appended list of locomotive orders were supplied by railways and other purchasers in response to inquiries from the *Railway Age*. They were checked against similar lists furnished through the cooperation of the builders, and amplified by reference to the weekly reports in the Equipment and Supplies column of the *Railway Age*. The *Railway Age* does not desire to make any claims as to the scientifically statistical accuracy of the tables or totals drawn from them. However, the real purpose of the statistics is to allow comparisons of the year's business with that of other years, which purpose it is hoped they meet with entire adequacy.

Passenger Car Orders in 1933

With total of 6, last year was worst on record—Programs of air-conditioning move forward

By Frank W. Kraeger
Associate Editor, Railway Age

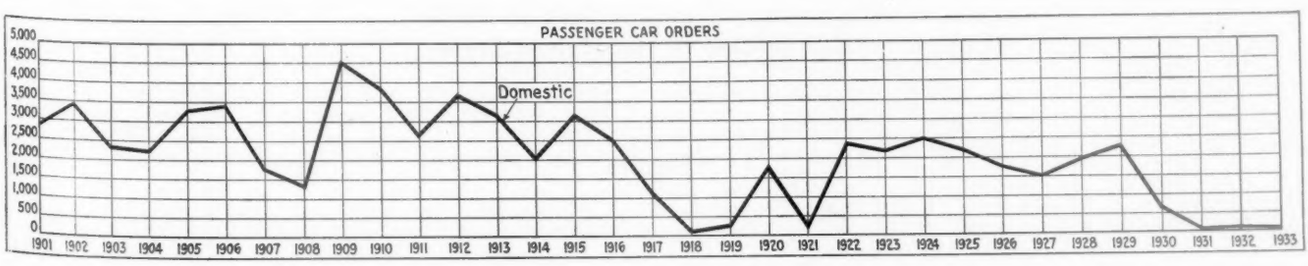
MARKETS for passenger-train cars continued depressed throughout 1933 which, with its orders for a total of only 6 such cars, becomes not only the poorest business year of the current depression but also the worst year on record in Table II, which is continuous back to 1901. In 1932 a total of 39 passenger-train cars were ordered while the 1931 total was 11 and that of 1930 was 667. These figures do not include rail motor cars which are considered in a separate article elsewhere in this issue.

But while thus refraining from purchasing new passenger service equipment, the railways continued throughout 1933 to push ahead with their air-conditioning programs. At the close of last year there was a total of 648 air-conditioned cars in service, including 404 railroad-owned cars and 244 Pullman cars. The former included 204 dining cars, 115 coaches, 44 lounge or chair cars, 24 combination cars, 9 lounge-diners, 3 salon coaches, 3 business cars and 2 club-diners. Of the total Pullman and railroad-owned air-conditioned cars—648—there were 310 equipped with mechanical refrigeration systems, 297 with ice refrigeration, 40 with steam-ejector systems and one with a water evaporation system. In addition to the foregoing there were, at the close of last year, 13 railroads which had installed 463 station pre-coolers.

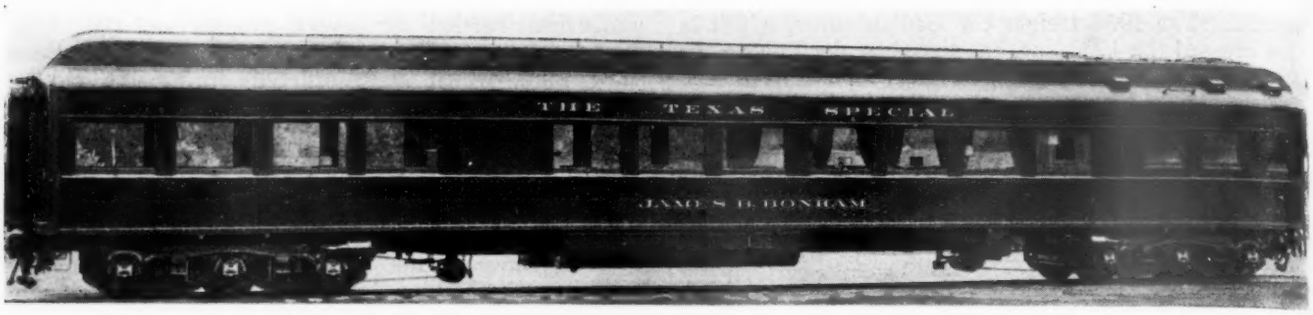
Table I—Passenger Car Orders of 1933

For service in the United States	6
For service in Canada	..
For export to other countries	..
Grand total	6

With passenger business at the low level which it maintained throughout 1933, it was not surprising that the railways failed to re-enter the market for new equip-



Passenger Car Orders From 1901 to 1933



Missouri-Kansas-Texas Lounging Car, Built by American Car & Foundry Company

ment. The year did, however, bring evidence that the carriers are becoming more alert to their passenger traffic problems, as shown (in addition to the extension of air-conditioning) by the wider use of excursion fares, the general rate reductions and the announcement of plans, notably those of the Union Pacific and the Chicago, Burlington & Quincy, for the building of high-speed stream-lined trains.

For the second successive year no passenger-train cars were ordered in the United States for export; 1933 and 1932 are the only two years in which no export orders were reported since these foreign orders have been segregated in the accompanying table. In 1931 there were 21 cars ordered for export while the comparable 1930 and 1929 figures were, respectively, 15 and 33.

Table II—Orders for Passenger Cars Since 1901

Year	Domestic Orders Only: Passenger cars	Year	Passenger cars
1901	2,879	1909	4,514
1902	3,459	1910	3,881
1903	2,310	1911	2,623
1904	2,213	1912	3,642
1905	3,289	1913	3,124
1906	3,402	1914	1,674
1907	1,791	1915	1,978
1908	1,319		

Year	Domestic and Foreign: Domestic	Canadian	Export	Total
1916	2,302	...	109	2,411
1917	1,124	...	43	1,167
1918	9	22	26	57
1919	292	347	143	782
1920	1,781	275	38	2,094
1921	246	91	155	492
1922	2,382	87	19	2,488
1923	2,214	263	6	2,483
1924	2,554	100	25	2,679
1925	2,191	50	76	2,317
1926	1,868	236	58	2,162
1927	1,612	143	48	1,803
1928	1,930	334	29	2,293
1929	2,303	122	33	2,458
1930	667	203	15	885
1931	11	11	21	43
1932	39	...	...	39
1933	6	...	...	6

Likewise, for the second successive year, no passenger-train cars were ordered by Canadian railroads from builders in that country. In 1931 Canadian orders totaled 11 cars as compared with 203 in 1930.

Passenger-train cars built in the United States for domestic service during 1933 totaled 6 as compared with 39 in 1932 and 198 in 1931. Production for export, like export orders, was at a standstill for the second successive year. Likewise Canadian production has been at a standstill for the past two years.

The list of orders which follows, amplifying the summary tables published herewith, has been compiled in the usual way, returns from railroads being checked against lists of orders supplied by the car builders, largely through the courtesy of the American Railway Car Institute. Unless otherwise noted, construction is assumed to be all-steel.

Table III—Passenger Cars Built in 1933

	United States	Canada	Total
Domestic	6	...	6
Foreign	...	...	...
	6	...	6

Comparison with Previous Years

Year	Domestic	Foreign	Total
1899	1,201	104	1,305
1900	1,515	121	1,636
1901	1,949	106	2,055
1902	From 1902 to 1907		1,948
1903	passenger car figures		2,007
1904	in these two columns		2,144
1905*	included in corre-		2,551
1906*	sponding freight car		3,167
1907*	columns.		5,457
1908*	1,645	71	1,716
1909*	2,698	151	2,849
1910*	4,136	276	4,412
1911*	3,938	308	4,246
1912†	2,822	238	3,060

* Includes Canadian output.
† Includes Canadian output and equipment built in company shops.

Year	United States: Domestic	Foreign	Total	Canadian: Domestic	Foreign	Total	Grand total
1913	2,559	220	2,779	517	...	517	3,296
1914	3,310	56	3,366	325	...	325	3,691
1915	1,852	14	1,866	83	...	83	1,949
1916	1,732	70	1,802	37	...	37	1,839
1917	1,924	31	1,955	45	...	45	2,000
1918	1,480	92	1,572	1	...	1	1,573
1919	306	85	391	160	...	160	551
1920	1,272	168	1,440	...	...	...	1,440
1921	1,275	39	1,314	361	...	361	1,675
1922	676	144	820	71	...	71	891
1923	1,507	29	1,536	...	...	...	1,536
1924	2,150	63	2,213	167	...	167	2,380
1925	2,363	50	2,413	...	...	...	2,413
1926	2,184	102	2,286	285	...	285	2,571
1927	1,785	50	1,835	126	...	126	1,961
1928	1,356	15	1,371	237	...	237	1,608
1929	1,254	20	1,274	162	...	162	1,436
1930	1,264	40	1,304	210	...	210	1,514
1931	198	21	219	66	...	66	285
1932	39	...	39	...	...	...	39
1933	6	...	6	...	...	...	6

Passenger Car Orders in 1933

For Service in the United States

Purchaser	No.	Class	Length Ft.	Length In.	Seating capacity	Weight	Date of order	Date of delivery	Builder
Missouri-Kansas-Texas	4	Lounge	82	4⅝	37	181,900	March	July	Am. Car & Fdy.
St. Louis-San Francisco	2	.....	.....		..	.....	.....	1933	Company Shops

Export

Purchaser	No.	Class	Length Ft.	Length In.	Seating capacity	Weight	Date of order	Date of delivery	Builder
National Railways of Mexico	*9	.....	.....		..	.....	1933	1933	Company Shops
	*2	.....	.....		..	.....	1933	1933	Company Shops

* Not included in totals.

Anhydrous Ammonia Car, Built by the General American Transportation Company

Freight Cars Ordered in 1933

Domestic total of 1,685 is lower than 1932 but builders fared better, as fewer orders went to company shops

By Frank W. Kraeger,
Associate Editor, Railway Age

DESPITE the fact that the 1,685 freight cars ordered in 1933 for domestic service in the United States comprises the lowest total on record, the car builders fared somewhat better than in 1932. Of the latter year's domestic orders, involving 1,968 cars, approximately 1,600 were ordered by railroads and other car users from their own shops, thus leaving only about 350 cars to constitute the total 1932 business of outside builders. In 1933, however, outside builders received orders for 942 cars while the remainder of the year's business—743 cars—went to company shops.

With business at 1932 and 1933 levels, comparisons with prior years mean little in the way of trend measurement. The total business of the past two years—3,653 cars—is, for example, less than 30 per cent of the 10,880 ordered in 1931; the latter was less than 25 per cent of the 1930 total which in turn was less than half the 1929 business. In only six years listed in Table II, which is continuous back to 1901, have fewer than 50,000 cars been ordered for domestic service, and four of these six years are those of this 1930-1933 depression period.

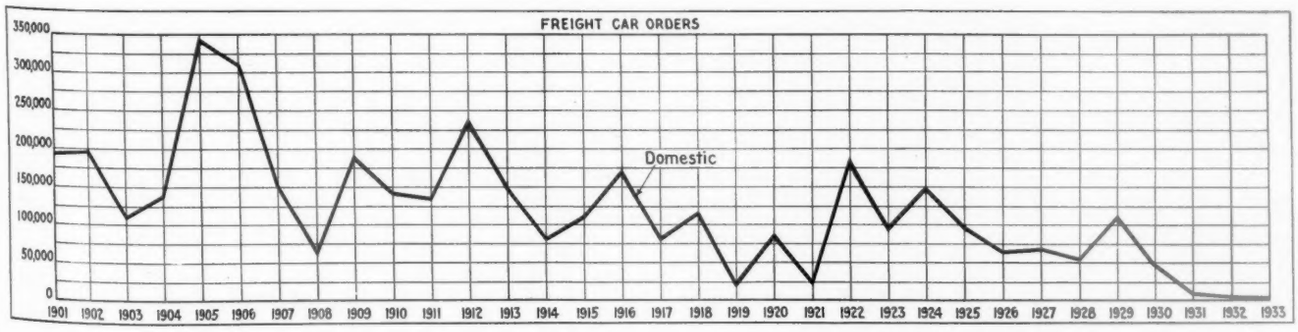
The two largest freight car orders of 1933 were placed by the Chicago Great Western and the Armour Car Lines; the former purchased 500 steel box cars and the latter 500 beef refrigerator cars. An order for 110 refrigerator cars was placed by the Wilson Car Lines, another for 100 automobile box cars by the Kansas City Southern and another for 100 tank cars by the General Chemical Company.

Table I—Freight Car Orders in 1933

For service in the United States	1,685
For service in Canada	75
For export to other countries	132
Grand total	1,892

In Canada only 75 freight cars were ordered in 1933 for service in that country, the smallest total since 1921, when 30 were purchased. Canadian orders in 1932 involved the purchase of 501 cars while the 1931 total was 3,807.

Freight cars ordered in the United States for export



Freight Car Orders From 1901 to 1933

Freight Car Orders in 1933

For Service in the United States

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of order	Date of delivery	Builder
Alaska Railroad	10	Ballast	100,000	40	6	Steel	51,500	September	.....	Pacific Car & Fdy.
	2	Box (Heated)	.....	.....		.....	.....	1933	1933	Company Shops
American Railway Association	5	S. S. Box	100,000	40	6	St. Sheathed	44,100	February	September	Pressed Steel
American Tank Line	10	Tank	80,000	28	0	Steel	42,200	1933	November	Amer. Car & Fdy.
Armour Car Lines	500	Refrigerator	80,000	31	2⅜	St. Underframe	60,000	October	1934	Company Shops
Baker Castor Oil Co.	1	Tank	8,000 g.	31	6	Steel	45,400	December	December	Amer. Car & Fdy.
Cabot, Godfrey L., Company	5	Hopper	80,000	45	10¾	Steel	33,300	August	November	Amer. Car & Fdy.
Carbide & Carbon Chemical Corp.	4	Tank	8,000 g.	.....		Aluminum	.....	December	.....	General American
	2	Tank	8,000 g.	31	6	Aluminum	35,800	February	March	Amer. Car & Fdy.
Chicago Great Western	500	D. S. Box	100,000	40	6	Steel	46,000	May	August	Pullman
Detroit Chemical Works	1	Tank	10,000 g.	32	3	Steel	49,900	September	November	Amer. Car & Fdy.
Diamond Alkali Co.	1	Tank	30,000	42	4½	Steel	51,800	May	June	Amer. Car & Fdy.
	1	Tank	30,000	42	4⅛	Steel	51,800	June	June	Amer. Car & Fdy.
	4	Tank	.....	.....		.....	.....	October	.....	General American
Du Pont de Nemours & Co., E. I.	6	Tank	10,000 g.	.....		.....	.....	July	.....	General American
	1	Tank	80,000	31	¼	Steel	49,300	August	November	Amer. Car & Fdy.
	2	Tank	.....	.....		.....	.....	August	.....	General American
	10	Tank	100,000	39	3⅛	Steel	70,000	October	December	General American
	10	Tank	6,200 g.	27	6	Steel	41,800	July	September	Amer. Car & Fdy.
	6	Tank	30,000	42	4⅛	Steel	52,900	October	December	Amer. Car & Fdy.
	2	Tank	11,200	.....		Steel	.....	December	.....	Amer. Car & Fdy.
Electro-Metallurgical Co.	6	Hopper	100,000	30	0	Steel	38,700	September	November	Amer. Car & Fdy.
Elgin, Joliet & Eastern	16	.....	.....	.....		.....	.....	1933	1933	Company Shops
Ethyl Gasoline Corp.	6	Tank	3,000 g.	.....		.....	.....	July	.....	General American
	6	Tank	6,000 g.	.....		.....	.....	July	.....	General American
	6	Tank	6,000 g.	30	9½	Steel	51,500	June	September	Amer. Car & Fdy.
	6	Tank	3,000 g.	26	10¼	Steel	41,000	August	October	Amer. Car & Fdy.
Fleischmann Transportation Co.	1	.....	.....	.....		.....	.....	.....	1933	Company Shops
General Chemical Co.	100	Tank	100,000	28	3	Steel	44,800	July	December	Amer. Car & Fdy.
Great Western Electro-Chemical Co.	1	Tank	30,000	28	6	Steel	48,300	July	August	Amer. Car & Fdy.
Hooker Electro-Chemical Co.	2	Tank	60,000	.....		.....	.....	August	.....	General American
	1	Tank	60,000	30	0	Steel	55,300	June	July	Amer. Car & Fdy.
Inland Steel Co.	12	Flat	150,000	40	0	Steel Frame	93,000	September	November	General American
Kansas City Southern	100	S. S. Auto Box	80,000	40	6	Steel Frame	51,600	November	1934	Company Shops
Mathieson Alkali Works	10	Tank	60,000	.....		.....	.....	December	.....	General American
	2	Box Insl.	80,000	44	5⅝	Steel	71,800	February	May	Amer. Car & Fdy.
Merchants Despatch, Inc.	5	Refrigerator	70,000	33	2	St. Underframe	57,900	July-Oct.	Nov., 1934	Company Shops
Midland Electric Coal Corp.	20	Hopper	110,000	37	3½	Steel Frame	52,000	November	.....	Koppel
Monsanto Chemical Co.	1	Tank	5,000 g.	28	0	Steel	38,600	December	December	Amer. Car & Fdy.
	1	Tank	8,000 g.	31	6	Aluminum	35,600	December	Jan., 1934	Amer. Car & Fdy.
	1	Tank	8,000 g.	31	6	Steel	54,700	December	Jan., 1934	Amer. Car & Fdy.
	2	Tank	8,000 g.	.....		Nickel Clad	.....	December	.....	Amer. Car & Fdy.
	1	Tank	.....	.....		.....	.....	November	.....	General American
National Refining Co.	10	Tank (Bod.)	80,000	.....		Steel	38,000	July	September	General American
Pennsylvania Salt Manufacturing Co.	2	Tank	60,000	.....		Steel	.....	1933	1933	Amer. Car & Fdy.
	3	Tank	40,000	.....		Steel	35,354	June	August	Amer. Car & Fdy.
	2	Tank	80,000	.....		Steel	.....	December	Feb., 1934	Amer. Car & Fdy.
Philippine Railway	25	Cane	20,000	19	1½	Steel	11,800	July	August	Magor
	10	Cane	60,000	35	9⅝	Steel	23,091	July	August	Magor
Proctor & Gamble Co.	2	Tank	8,000 g.	31	6	Aluminum	36,100	October	October	Amer. Car & Fdy.
St. Louis-San Francisco	5	.....	.....	.....		.....	.....	.....	1933	Company Shops
St. Louis Southwestern	4	.....	.....	.....		.....	.....	.....	1933	Company Shops
Shawinigan Products Corp.	3	Tank	8,000 g.	.....		Aluminum	.....	July	.....	General American
	1	Tank	8,000 g.	31	6	Aluminum	35,400	June	August	Amer. Car & Fdy.
Solvay Process Co.	3	Tank	30,000	42	3⅜	Steel	49,500	January	January	Amer. Car & Fdy.
	3	Tank	60,000	30	0	Steel	60,200	December	Feb., 1934	Amer. Car & Fdy.
	18	Tank	30,000	28	6	Steel	45,300	December	Feb., 1934	Amer. Car & Fdy.
	4	Tank	60,000	42	4⅛	Steel	51,400	December	Jan., 1934	Amer. Car & Fdy.
South Georgia	2	S. S. Box	80,000	40	6	Steel Frame	50,000	November	Jan., 1934	Mount Vernon
Staley, A. E., Manufacturing Co.	20	Tank	8,000 g.	.....		Steel	.....	July	September	General American
	1	Tank	6,000 g.	.....		Steel	.....	July	September	General American
Standard Oil Co. of N. J.	6	Tank	8,000 g.	31	6	Steel	46,500	December	December	Amer. Car & Fdy.
Stauffer Chemical Co.	1	Tank	10,000 g.	.....		.....	.....	September	.....	General American
	1	Tank	10,000	31	3	Steel	56,000	September	October	Amer. Car & Fdy.
Tacoma Electrochemical Co.	1	Tank	60,000	28	6¼	Steel	52,700	June	August	Amer. Car & Fdy.
U. S. Navy	4	Flat	60,000	33	5½	Steel	19,350	October	Jan., 1934	Amer. Car & Fdy.
	18	Flat	100,000	.....		.....	.....	December	.....	Haffner-Thrall
	2	Flat	140,000	.....		.....	.....	December	.....	Haffner-Thrall
	7	Box	100,000	.....		.....	.....	December	.....	Haffner-Thrall
	4	Gondola	100,000	.....		.....	.....	December	.....	Haffner-Thrall
	2	Hopper	100,000	.....		.....	.....	December	.....	Haffner-Thrall
	5	Flat	60,000	34	5	Steel Frame	26,000	May	August	Koppel
	3	Box	60,000	33	0	Steel Frame	32,000	May	August	Koppel
Wabash	1	Flat	50,000	45	6	Steel-Alloy	65,800	November	Jan., 1934	Amer. Car & Fdy.
War Dept.—U. S. Engineers	4	Asphalt	40,000	8	0	Steel	28,000	September	November	Atlas
Wheeling Steel Corp.	1	Transfer	100,000	.....		Steel	.....	March	May	Pressed Steel
	8	Flat	140,000	50	8½	Steel	57,800	September	December	Pressed Steel
Wilson Car Lines	69	Refrigerator	80,000	.....		Steel Frame	.....	1933	1933	Company Shops
	41	Refrigerator	80,000	.....		Steel Frame	.....	1933	1934	Company Shops

Export

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of order	Date of delivery	Builder
Interoceanic Railway of Mexico	*4	.....	.....	.....		.....	.....	1933	1933	Company Shops
Mexican Railway	*2	Caboose	.....	.....		.....	.....	1933	1933	Company Shops
National Railways of Mexico	*37	.....	.....	.....		.....	.....	1933	1933	Company Shops
	*9	.....	.....	.....		.....	.....	1933	1933	Company Shops
United Fruit Co.	42	Fruit	25,000	36	6¼	Steel	.....	March	July	Pullman-Standard
	20	Fruit	25,000	36	6¼	Steel	.....	June	September	Pullman-Standard
	50	Fruit	25,000	36	6¼	Steel	.....	June	October	Pullman-Standard
	20	Fruit	25,000	36	6¼	Steel	.....	November	.....	Pullman-Standard

* Not included in totals.

Canada

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of order	Date of delivery	Builder
British American Oil Co.	50	Compt. Tank	6,000 g.	31	5⅝	Steel	45,900	May	August	National Steel
Canadian General Transit Co.	25	Tank	80,000	32	11¾	Steel	43,000	February	May	Can. Car & Fdy.

during 1933 totaled 132 or 55 more than the 1932 figure of 77. But, while thus better than the previous year, the 1933 export total is nevertheless second only to the former as the lowest total reported since 1915, the year in which export figures were first segregated in Table II.

While the foregoing review of 1933 is not an optimistic one, there seems at last to have arrived the time when real hope for better markets may be entertained by car builders. The recovery of traffic and earnings continued throughout the latter half of the past year and, meanwhile, Public Works Administration funds have become available to railways for equipment purchases. That these developments will become real stimulants to equipment buying is indicated by pending inquiries, which by the middle of January had been issued for 13,445 freight cars, including the inquiries of the Van Sweringen lines for 12,725. In addition a portion of the Pennsylvania's $77,000,000 loan from the P. W. A. will be used for 7,000 new freight cars.

Freight cars built during 1933 for domestic service in the United States totaled only 2,160 which figures now supplants that of 1932 as the lowest on record in Table III which is continuous back to 1899. The 1932 domestic production figure was 3,254 and that of 1931 was 13,205. In Canada 550 freight cars were built in 1933 as compared with none in 1932 and 4,633 in 1931. Production in the United States for export last year involved the building of 151 freight cars as compared with 82 in 1932 and 409 in 1931.

The foregoing production figures should not be confused with the totals of orders placed. Nor should they be compared with the figures on the number of cars installed as reported in the statistics issued monthly by the Car Service Division of the American Railway Association. This latter includes only installations on Class I roads, whereas *Railway Age* figures include the production of all cars for the railroads as well as private car lines.

Table II—Orders for Freight Cars Since 1901

Domestic Orders

Year	Freight cars	Year	Freight cars
1901	193,439	1908	62,669
1902	195,248	1909	189,360
1903	108,936	1910	141,024
1904	136,561	1911	133,117
1905	341,315	1912	234,758
1906	310,315	1913	146,732
1907	151,711	1914	80,264

Domestic and Foreign

Year	Domestic	Canadian	Export	Total
1915	109,792	.....	18,222	128,014
1916	170,054	.....	35,314	205,368
1917	79,367	.....	53,191	132,558
1918	114,113	9,657	53,547	177,317
1919	22,062	3,837	3,994	29,893
1920	84,207	12,406	9,056	105,669
1921	23,346	30	4,982	28,358
1922	180,154	746	1,072	181,972
1923	94,471	8,685	396	103,552
1924	143,728	1,867	4,017	149,612
1925	92,816	642	2,138	95,596
1926	67,029	1,495	1,971	70,495
1927	72,006	2,133	646	74,785
1928	51,200	8,901	2,530	62,631
1929	111,218	9,899	3,023	124,140
1930	46,360	1,936	1,200	49,496
1931	10,880	3,807	151	14,838
1932	1,968	501	77	2,546
1933	1,685	75	132	1,892

Prior to 1918, Canadian orders included in "Domestic."

The appended tables contain a detailed statement of orders placed for new freight cars, or those having new bodies, during 1933 by railroads and industrial concerns; also those placed in Canada and for export. The list of orders was compiled from information furnished to the *Railway Age* by the railroads, private car lines, and other purchasers of cars, in response to requests for this information. The data thus furnished were then checked against lists of orders supplied by the car builders, and amplified accordingly, and also against the weekly reports of orders appearing in the Equipment and Supplies column of the *Railway Age*. The production figures were secured in response to requests to the car builders for this information. As in former years the *Railway Age* is especially indebted to the American Railway Car Institute for its kindness in making available reports of the companies affiliated with that organization.

Table III—Freight Cars Built in 1933

	United States	Canada	Total
Domestic	2,160	550	2,710
Foreign	151	...	151
Total	2,311	550	2,861

Comparison with Previous Years

Year	Domestic	Foreign	Total	Year	Domestic	Foreign	Total
1899	117,982	1,904	119,886	1906*	236,451	7,219	240,503
1900	113,070	2,561	115,631	1907*	280,216	9,429	284,188
1901	132,591	4,359	136,950	1908*	75,344	1,211	76,555
1902	161,747	2,800	162,599	1909*	91,077	2,493	93,570
1903	153,195	1,613	152,801	1910*	176,374	4,571	180,945
1904	60,955	1,995	60,806	1911*	68,961	3,200	72,161
1905*	162,701	5,305	165,155	1912†	148,357	4,072	152,429

*Includes Canadian output.
†Includes Canadian output and equipment built in company shops.

	United States			Canadian			Grand
Year	Domestic	Foreign	Total	Domestic	Foreign	Total	total
1913	176,049	9,618	185,667	22,017	....	22,017	207,684
1914	97,626	462	98,088	6,453	....	6,453	104,451
1915	58,226	11,916	70,142	1,758	2,212	3,970	74,112
1916	111,516	17,905	129,421	....	....	5,580	135,001
1917	115,705	23,938	139,643	3,658	8,100	11,758	151,401
1918	67,063	40,981	108,044	14,704	1,960	16,664	124,708
1919	94,981	61,783	156,764	6,391	30	6,421	163,185
1920	60,955	14,480	75,435	....	....	....	.....
1921	40,292	6,412	46,704	8,404	745	9,149	55,853
1922	66,289	1,126	67,415	458	100	558	67,973
1923	175,748	2,418	178,166	....	....	....	.....
1924	113,761	1,141	114,902	1,721	....	1,721	116,623
1925	105,935	3,010	108,945	....	....	....	.....
1926	88,862	2,771	91,633	1,645	....	1,645	93,278
1927	63,390	1,087	64,477	2,851	....	2,851	67,328
1928	46,060	938	46,998	5,158	....	5,158	52,156
1929	82,240	3,168	85,408	8,557	....	8,557	93,965
1930	75,188	1,909	77,097	6,923	....	6,923	84,020
1931	13,205	409	13,614	4,633	....	4,633	18,247
1932	3,254	82	3,336	....	....	....	3,336
1933	2,160	151	2,311	550	....	550	2,861

The *Railway Age* is not sufficiently optimistic to believe that the lists can include all the orders placed or that the figures of production are of scientific accuracy. However, it is believed that such omissions as occur will be found to be small and unimportant, and will not vitiate the value of the figures, particularly as concerns comparison with preceding years which, after all, is the primary purpose of the compilations.

* * *

On the Pennsylvania, Near Lancaster, Pa.

Railways Extend Highway Service

Adoption of storedoor pick-up and delivery service in East and South outstanding motor transport development of year

By John C. Emery
Motor Transport Editor, Railway Age

FEW changes of other than minor importance in their motor coach operations, but a continued drive to increase the revenues and reduce the expenses of motor coach service already in existence; somewhat expanded use of motor trucks in replacement of train service where economy and improved service would result; the adoption of storedoor collection and delivery service by additional railways, among them outstanding lines in the East and South: This, in brief, is the story of the motor transport activities of the railways in 1933. It was not a year of many new experiments in the co-ordination of railway and highway transportation. On the other hand, it was a year of considerable solid building upon the foundation of co-ordinated service which had been laid by the experiments of earlier years.

One significant change in the basic purpose of the new highway services of the railways, however, deserves notice. This was in the adoption of motor vehicle service largely for the purpose of improving the transportation product of the railways. In previous years, a substantial part of the new motor bus and motor truck services of the railways were designed principally, by their replacement of expensive train service, to effect operating economies. In 1933, significantly, there was much less of this and much more adoption of co-ordinated railway and highway service for the purpose of making faster and more flexible the passenger and freight service of the railways. This, of course, was natural in a year when economy for its own sake was temporarily pushed into the background, and better railway transportation to meet and overcome the competition of other types of carriers, and thereby to increase the revenues of the railways, was their principal objective. The outlook is for a continuation of this program, for extended use of motor vehicles as a means of improving railway transportation.

Many More Trucks Used

From the standpoint of the number of vehicles used, there was some recession in the motor coach operations of the railways and great expansion in their truck operations. At the end of 1933, approximately 75 railways, including 30 Class I roads, were operating, either directly, through wholly-owned subsidiaries or through partially-owned subsidiaries, about 4,500 motor coaches. The number of railways using motor trucks, tractors and trailers in revenue freight service now is well in excess of 100 and includes nearly all of the principal railways of the country. The number of trucks owned or used by the railways in connection with their freight service is difficult to state, since many of them are used under contracts and the number varies from day to day. Still more are owned by terminal transfer companies, the railway interest in which is difficult to define. A conservative estimate as to the number of trucks, tractors and trailers owned by the railways or their subsidiaries or contracted for by the railways, and used in terminal as well as station-to-station service, as of December 31, 1933, is approximately 42,000. This figure, representing the trucks owned or used by the railways, is greatly in excess of the similar figure published in the *Railway Age* of February 4, 1933. Part of the increase has been due to the great expansion in the storedoor collection and delivery service of the railways during 1933, and the remainder can be accounted for by the inclusion in the new figure of trucks estimated to be operated by terminal transfer companies wholly or partially owned by railways.

Outstanding Developments in 1933

Among the oustanding developments of the year was the withdrawal of the St. Louis Southwestern from direct operation of motor coach service. For some years, a Cotton Belt subsidiary, the Southwestern Transportation Company, operated motor coaches generally throughout the territory covered by the railway. Equipment and franchises were sold during the year to the newly-formed Southwestern Greyhound Lines, a part of the Greyhound system, the Cotton Belt taking an interest in the newly-organized company. The truck operations of the railway were not affected by the change, the Cotton Belt continuing to operate a fleet of motor trucks through the Southwestern Transportation Company.

The Missouri Pacific, during 1933, began the operation of three motor truck routes in the state of Kansas, largely for the purpose of improving the service rendered to its patrons and as a means of meeting truck competition, and the Southern Pacific, through its merchandise freight handling subsidiary, the Pacific Motor

Transport Company, organized the Pacific Trucking Company to operate a number of motor truck routes in the territory of the Southern Pacific, Pacific System.

Of greater importance with respect to co-ordinated rail and truck service, however, was the adoption of storedoor collection and delivery service by outstanding railways in territories where previously such service had not been general. On March 15, several southeastern roads, led by the Louisville & Nashville and the Nashville, Chattanooga & St. Louis, established pick-up and delivery service in their territories. On December 1, this service was adopted generally for the first time by leading eastern railways, including the Pennsylvania, the Erie and the Grand Trunk Western. On December 15, similar service was offered by the Chesapeake & Ohio, the New York, Chicago & St. Louis, the Pere Marquette and the Chicago, Indianapolis & Louisville. At the close of the year, virtually all parts of the United States were covered by railways providing pick-up and delivery service for l.c.l. shipments, and the general adoption of the service by all railways appeared to be an early possibility.

Orders for Highway Vehicles

Railways, together with their subsidiaries and affiliated motor transport companies, ordered a total of 106 motor coaches, 67 motor trucks, 2 tractors, 17 trailers and 37 passenger automobiles during 1933 according to replies received by the *Railway Age* in response to questionnaires seeking such data. Comparable 1932 figures are: Motor coaches, 164; motor trucks, 281; tractors, 40; trailers, 25; passenger automobiles, 11. The decline in the total number of motor coaches ordered is due to reduced purchases reported by the various units of the Greyhound System, which are affiliated with railways, while the drop in orders reported by the Railway Express Agency accounts for the lower motor truck total. Motor coach orders, other than those placed by the Greyhound Lines, involved the purchase of 53 ve-

(*Continued on page 165*)

Orders for Highway Vehicles

Railroad	No.	Type of Vehicle	Model designation	Seating capacity or truck capacity in tons	Purchased by railroad or subsidiary	Where to be used	Manufacturer
Atlantic City	1	Sedan	.....	5	Railroad	Co. Business	.....
Atlantic Coast Line	1	Truck	Mail Express	1½ ton	Railroad	Rev.	Chevrolet
Boston & Albany	1	M. Coach	.....	5	Railroad	Co. Business	General Motors
	1	Sedan	.....	5	Railroad	Co. Business	Dodge
Boston & Maine	4	M. Coach	City	21	Subsidiary	Rev.	General Motors
	4	M. Coach	Parlor	29	Subsidiary	Rev.	General Motors
	1	Truck	Stake Body	1½ ton	Railroad	Co. Business	Ford
	1	Truck	Delivery	½ ton	Railroad	Co. Business	Ford
	2	Coupe	Model 40	.....	Railroad	Co. Business	Ford
Chesapeake & Ohio	1	Truck	.....	1½ ton	Railroad	Co. Business	Ford
	1	Truck	.....	2 ton	Railroad	Co. Business	Int. Harvester
Chicago, Milwaukee, St. Paul & Pacific	1	M. Coach	.....	5	Railroad	Co. Business	Chevrolet
	1	Truck	Model BB-40	1½ ton	Railroad	Co. Business	Ford
	1	Truck	Model G-43-A	2 ton	Railroad	Co. Business	Chrysler
	1	Truck	Eagel Model	1½ ton	Railroad	Co. Business	Chevrolet
	1	Trailer	TT-218	5 ton	Railroad	Co. Business	Lapeer-Trailmobile
	2	Sedan	.....	5	Railroad	Co. Business	Ford
	1	Coupe	.....	2	Railroad	Co. Business	Ford
	1	Coupe	.....	2	Railroad	Co. Business	Chevrolet
Denver & Rio Grande Western	2	M. Coach	.....	29	Subsidiary	Rev.	.....
	1	Truck	.....	3 ton	Subsidiary	Rev.	.....
Hoosac Tunnel & Wilmington	1	Coach-Truck	.....	5 Pass.-1½ ton	Railroad	Rev.	Chevrolet
Lehigh Valley	1	Truck	Open Body	½ ton	Railroad	Co. Business	Chevrolet
	1	Truck	Stake Body	1½ ton	Railroad	Co. Business	Chevrolet
Maine Central	2	Truck	.....	½ ton	Railroad	Co. Business	Ford
New York Central	2	Truck	Stake Body	½ ton	Subsidiary	Co. Business	Dodge
	2	Truck	Stake Body	2 ton	Railroad	Co. Business	Studebaker
	1	Truck	Stake Body	1½-2 ton	Railroad	Co. Business	Studebaker
	1	Truck	Stake Body	3-4 ton	Railroad	Co. Business	Studebaker
	1	Truck	Stake Body	2 ton	Railroad	Co. Business	Dodge
	1	Truck	Stake Body	2 ton	Railroad	Co. Business	White
	2	Tractor	.....	.....	Railroad	Co. Business	General Motors
	5	Semi-Trailer	.....	.....	Railroad	Co. Business	General Motors
New York, New Haven & Hartford	20	M. Coach	City	21	Subsidiary	Rev.	General Motors
	10	M. Coach	Parlor	17	Subsidiary	Rev.	General Motors
	8	M. Coach	Parlor	22	Subsidiary	Rev.	A. C. F. Motors
	24	Sedan	.....	7	Subsidiary	Rev.	Packard
	5	Truck	.....	3 ton	Subsidiary	Rev.	Chevrolet
	5	Truck	.....	3 ton	Subsidiary	Rev.	Ford
	1	Truck	.....	5 ton	Subsidiary	Rev.	Mack
	2	Coupe	.....	2	Railroad	Co. Business	Ford
	1	Coupe	.....	2	Railroad	Co. Business	Chevrolet
	1	Coupe	.....	2	Railroad	Co. Business	Cadillac
Norfolk & Western	2	Truck	.....	1½ ton	Railroad	Co. Business	Chevrolet
	1	Truck	.....	1½ ton	Railroad	Co. Business	Ford
Pacific Greyhound Lines	22	M. Coach	Parlor	33-40	.....	Rev.	General Motors
	8	M. Coach	Nite Coach	25-40	.....	Rev.	Pickwick
	7	M. Coach	Duplex	53	.....	Rev.	Pickwick
	1	M. Coach	Parlor	31	.....	Rev.	General Motors
Pennsylvania	2	Truck	.....	3 ton	Railroad	Co. Business	.....
	1	Truck	.....	1½ ton	Railroad	Co. Business	.....
	1	Sedan	.....	5	Railroad	Co. Business	.....
Pennsylvania Greyhound Lines	15	M. Coach	Parlor	33	.....	Rev.	General Motors
Pere Marquette	1	Truck	.....	¼ ton	Railroad	Co. Business	.....
Railway Express Agency	13	Truck	.....	Light duty	.....	Rev.	.....
	1	Truck	.....	Heavy duty	.....	Rev.	.....
	4	Trailer	.....	.....	.....	Rev.	.....
Reading	2	M. Coach	.....	5	Railroad	Co. Business	General Motors
	2	Truck-Tractor	.....	10 ton	Subsidiary	Rev.	Mack
	2	Truck-Tractor	.....	6 ton	Subsidiary	Rev.	General Motors
	1	Truck-Tractor	.....	10 ton	Subsidiary	Rev.	White
	1	Truck	.....	3½ ton	Subsidiary	Rev.	Int. Harvester
	1	Truck	.....	3½ ton	Subsidiary	Rev.	General Motors
	4	Semi-Trailer	.....	10 ton	Subsidiary	Rev.	Fitz-Gibbon & Crisp
	2	Semi-Trailer	.....	6 ton	Subsidiary	Rev.	General Motors
	1	Semi-Trailer	.....	10 ton	Subsidiary	Rev.	Freuhauf
St. Louis Southwestern	1	Truck	Stake Body	1½ ton	Subsidiary	Rev.	Ford
Southeastern Express Company	2	Truck	.....	1½ ton	.....	Rev.	Indiana Truck Co.
	1	Truck	.....	1½ ton	.....	Rev.	Chevrolet
Waterloo, Cedar Falls & Northern	3	Truck	.....	2½ ton	Railroad	Rev.	Int. Harvester

Decline in Communication Activities Is Checked

Pole Line Along Track Protected by Snow Sheds, Near the Summit of the Southern Pacific's Overland Route Through the Sierra Nevadas in California. Telegraph Maintainer on Skis

New mileage of telegraph circuits is greater than corresponding figures for previous year—Other figures, although lower, show marked leveling

By S. R. Hamilton
Associate Editor, Railway Age

THE sharp decline in most railway communication activities since the peak year of 1929, has virtually halted, and in at least two instances gains were recorded in 1933 as compared with 1932. This, the fourteenth annual communications statistical review, covering more than 100 railroads throughout the United States and Canada, indicates strongly that this department of the railroads has been "rubbing its nose on the bottom" and that there is almost certain to be an upward trend in 1934.

As regards new mileage of printing telegraph circuits, as well as new mileage of other types of telegraph circuits, the upward trend is already a fact, increases in these figures for 1933, as compared with 1932, being 2.3 per cent and 66 per cent, respectively. These increases are particularly significant in view of the precipitous and, with only one exception, unbroken characteristic of the curves charting railway telegraph and telephone construction activities since 1929.

Table A—Principal Increases in Plant Facilities During 1933, Compared with 1932

	1933	1932
Miles of new or rebuilt pole line:		
Railroad owned	1,630	
Commercially owned	2,045	
Jointly owned	1,244	
Total	4,919	5,262
Mileage of new copper wire:		
Railroad owned	2,049	
Commercially owned	1,706	
Total	3,755	4,243
Increase in miles of road dispatched by telephone	178	389
Increase in miles of long-distance telephone circuits	1,923	2,286
New mileage of telegraph circuits, all types	4,421	2,658
New mileage of carrier-current system	452	1,303
Increase in miles of printing telegraph circuits	2,586	2,528
Number of new printing telegraph machines	20	31

Generally speaking, attention was concentrated during 1933 upon the improvement of existing services wherever such improvements could be made without large capital expenditures. In most cases, the message traffic was far below the capacity of the lines and equipment, but there are admittedly many places where, even with the present low volume of traffic, appreciable savings can be made by the installation of modern equipment and methods. Lack of funds with which to make these self-liquidating changes has been an important factor restraining activity in the communication field, as, indeed, it has been in every other department of the railroads.

Table A shows that only 4,919 miles of pole line was built or rebuilt during 1933, as compared with 5,262 miles in 1932; in 1929 the corresponding figure was 11,519 miles. New copper wire installations totaled 11.5 per cent less than in the preceding year; 3,755 miles of new copper wire was installed in 1933, as compared with 4,243 miles in 1932, and 54,890 miles in 1929. Only 178 miles of road were reported as having been added to the telephone dispatching system in the past year, as compared with 389 miles in 1932 and 4,424 miles in 1929. Long-distance telephone circuits were increased to the extent of 1,923 miles in 1933, as compared with 2,286 miles in 1932 and 46,489 miles in 1929.

Table B—Principal Copper Wire Installations Completed in 1933

Railroad	Miles of New Copper Wire: Railroad Owned	Commercially Owned	Total
Canadian Pacific	70	426	496
Chesapeake & Ohio	414		414
Union Pacific	53	316	369
Pennsylvania	290	28	318
Canadian National	5	296	301
Missouri Pacific	221	30	251

New telegraph circuits (all types) installed during the past year total 4,421 miles, an increase of 66 per cent over the corresponding figure of 2,658 miles in 1932. Printer circuits and carrier-current systems, superimposed upon existing wires, no doubt account for a considerable portion of this increase, although the new mileage of carrier-current system is only a third of what it was the year before; the carrier-current figures are 452 miles for 1933 and 1,303 miles for 1932. Printer activity continued at a rate that substantiates the opinion of many telegraph and telephone engineers that this

Table C—Printing Telegraph Installations Completed in 1933

Railroad	Miles of Circuit	Number of Machines
Texas & New Orleans	7	8
Pennsylvania	558	7
Canadian Pacific	2,021	5

type of communication offers much promise as a field for effecting large savings in the future. New mileage of printing telegraph circuits shows a slight increase over 1932, while the number of new printing telegraph machines installed in 1933 was about 35 per cent less than in the preceding year.

Plotted graphically, the figures shown in Table A, together with the corresponding figures published in our preceding annual reviews, show a marked leveling off or upward tendency for 1933. Excepting long-distance telephone circuits, which showed an increase in 1931 as compared with 1930, each of these activities fell off drastically each year since 1929, in most cases the activity in the past year being only a small fraction of what it was in the peak year of 1929, although comparing favorably with 1932.

Three railroads, the Canadian Pacific, the Pennsylvania, and the Texas & New Orleans, reported new installations of printing telegraph equipment. Seven new machines were added on the Eastern and Central regions and the New York division of the Pennsylvania, affecting 558 miles of circuit. On the Canadian Pacific, five machines were put in service on 2,021 miles of circuit. The Texas & Pacific installed eight new machines, but only seven miles of circuit were affected.

New copper wire was installed on 31 roads, as compared with 30 roads in 1932. The Canadian Pacific led the list with a total of 496 miles, most of which is commercially owned. The Chesapeake & Ohio was second, with 414 miles of railroad-owned wire. On the Union Pacific the total was 369 miles; on the Pennsylvania, 318 miles; on the Canadian National, 301 miles; on the Missouri Pacific, 251 miles, and so on down the list. The total amount of new copper wire reported was 3,755 miles, or 488 miles less than in 1932.

Only two roads reported increases in the miles of road dispatched by telephone. These were the St. Louis-San Francisco, with an increase of 167 miles, and the Virginian, 11 miles. The total, 178 miles, compared with 389 miles in 1932, in which year four railroads reported activity in this respect.

Approximately 4,919 miles of pole line were reported as having been built or rebuilt during the past year, by 40 roads; in 1932, the total was 5,262 miles. The Santa Fe, always a firm believer in the economy of first-class maintenance, led the list, reporting 559 miles of jointly owned pole line. Other roads reporting more than 200 miles were the Soo Line, 551 miles; the L. & N., 397 miles; the New Haven, 326 miles; the Illinois Central, 291 miles; the Northern Pacific, 281 miles; and the Chesapeake & Ohio, 233 miles. Ten miles of commercially owned pole line was removed on the Rock Island, and the N. P. reported that 0.8 mile of jointly owned pole line was replaced with underground cable.

Long-distance telephone circuits were increased 1,923 miles on the 15 roads that reported any activity in this field. The Canadian Pacific reported an increase of 679 miles of such circuits; and the Chesapeake & Ohio, 416 miles. The Alton converted 150 miles of Morse wires to telephone circuits and simplexed these circuits for Morse operation. Other roads, each of which reported more than 50 miles of new long-distance telephone circuits, were the Lackawanna, the Milwaukee, the Missouri Pacific, the International Great Northern, and the St. Louis-San Francisco.

Telegraph Circuits Show Increase

New mileage of telegraph circuits of all types, for the year 1933, amounted to 4,421 miles, or 1,763 miles greater than in 1932. The Canadian Pacific reported 3,863 miles, or 87 per cent of the total, due, probably, to its continued, although greatly reduced, activity in the application of the carrier-current system. Five other roads reported the remainder: The Canadian National, 301 miles; the C. & O., 118 miles; the New Haven, 106 miles; the Santa Fe, 21 miles; and the N. P., 12 miles. The Boston & Albany reported a decrease of 88 miles.

As in previous years, expansion of carrier-current systems was confined to Canada, the Canadian Pacific adding 452 miles to its already extensive system; in 1932 this road applied carrier-current transmission to 757 miles of line. The Canadian National, which, in 1932, applied this system to 546 miles, reported no new mileage for 1933, nor did any of the railroads in the United States.

Outlook for 1934

As to the future, every indication points to the probability that 1934 will witness a definite trend upward in maintenance activities, and, to the extent that available money will permit, in the installation of equipment that will effect greater economies and better service. Teletype machines for yard and terminal message traffic, long-distance printer operation and carrier-current transmission systems promise to be among the principal objects of consideration when the communication departments are able to undertake corresponding expenditures.

Front- to rear-end communication on freight trains is of interest to railway operating officers and is receiving considerable attention. A telephone communication system for use between the head and rear ends of long freight trains, or between nearby trains, or between trains and wayside points, has been introduced by the General Electric Company. In this system the message is inductively transmitted from the train to the running rails, through induction coils carried on the train. The message is then carried along the right-of-way on any convenient wire, and is returned again to the rails, where it is picked up, inductively, by the receiving circuit. It is claimed that no interference is caused with nearby radio receivers, and therefore this system should not be open to the objections heretofore imposed by the Federal Radio Commission upon systems using radio transmission.

Railways Extend Highway Service

(*Continued from page 163*)

hicles last year as compared with 40 in 1932; motor truck orders, other than those of the Railway Express Agency, were for 53 vehicles as compared with 1932 orders for 32.

Statistics of motor vehicles ordered by railroads and their affiliates continue to be somewhat fragmentary. Vehicles ordered by contractors engaged exclusively in railway work are not reported by the railroads, and this became a more important factor last year when store-door collection and delivery service was widely installed on a contract basis. Also, many sales to the railroads are made by local dealers and are therefore not known to the manufacturers who, in addition to the railways, receive questionnaires designed to collect the accompanying data. Replies to these questionnaires sent to manufacturers are checked with the railway replies and the resultant data are further checked with reports of orders placed throughout the year as published in the "Equipment and Supplies" columns of *Railway Age*. Thus it is believed that the most accurate figures obtainable are derived for the compilation which appears on page 163.

Character of Rail Motor Cars Changed in 1933

Heavy, high-powered cars give way for light-weight articulated trains and small, low-powered single units

By C. B. Peck
Mechanical Department Editor, Railway Age

THE steam railroads of the United States placed orders for 18 rail motor trains, motor cars, and trailers for use in motor trains during 1933. No orders for equipment of this type were placed in Canada. Export orders for three small motor cars were received from Colombia.

During most of the past twelve years there has been a definite trend toward more powerful and heavier rail-motor cars. The number of small lightweight cars driven by gasoline engines of small power capacity through mechanical transmissions have tended to decline during this period and more of the cars have assumed the form and structural characteristics of conventional railway passenger cars. During most of these years approximately 20 per cent of the total number of units ordered were trailers, somewhat lighter than conventional passenger-car construction, designed especially for use behind rail-motor cars. This has not been true, however, for the past two years. Many of the more powerful motor cars are now hauling trains made up of conventional steam coaches.

Orders for Rail-Motor Cars and Trailers

	1922	'23	'24	'25	'26	'27	'28	'29	'30	'31	'32	'33
For service in U. S.	51	77	120	149	142	180	175	132	54	26	15	18*
Canada	7	3	12	7	4	9	10	10	8	4	4	..
For export	1	22	..	34	32	12	9	28	3	10	2	3
Total	59	102	132	190	178	201	194	169	65	40	21	21*
Motor cars	50	93	112	171	161	176	172	159	56	40	20	17*
Trailers	9	9	20	19	17	25	22	11	9	..	1	4

* Includes three 3-unit articulated trains.

Since the introduction of cars of great strength and light-weight construction for use in light branch-line service in 1932, the possibilities of combining great strength with light weight offered by aluminum alloys and stainless-steel construction have rapidly passed beyond the branch-line phase of their development. The possibilities which these materials offer in connection with suitable streamlining for the reduction of air resistance to meet the new ideas of high-speed service were quickly seized upon and orders were reported during the year for three light-weight, streamlined high-speed articulated trains. The two for the Union Pacific are of aluminum alloy construction and that of the Chicago, Burlington & Quincy is of the Budd stainless-steel construction.

Power-Plant Capacity of Rail-Motor Cars, U. S. and Canada

Horsepower Over	To and incl.	1925	1926	1927	1928	1929	1930	1931	1932	1933
...	100	13	14	2	5	6	2	..	5*	7
100	125	5	7	..	1	3	..	..	3	1
125	150	9	..	..	4	1	..	..	..	..
150	175	20	1	..	1	..	..	..	..	..
175	200	49	3	3	1	..	..	..	..	1
200	250	36	65	43	13	2	..	..	..	..
250	300	2	26	76	64	15	7	1	..	..
300	350	2	..	..	30	2	2	..	..	..
350	400	..	..	..	18	64	25	22	6	1
400	450	..	8	7	6	2	..	1	..	..
450	500	..	11	1	4	5	..	..	..	..
500	...	..	..	8	15	30	17	6	4	3
Unclassified		..	..	24	1	2	..	..	..	1

* Four are small cars for a 3-ft. gage line.

Comparison of Rail-Motor Weights, U. S. and Canada

Weights, lb. Over	To and incl.	1925	1926	1927	1928	1929	1930	1931	1932	1933
.....	25,000	6	7	..	3	3	..	..	8*	7
25,000	50,000	19	7	..	4	6	..	..	1	2
50,000	75,000	74	2	4	4	..	2	..	..	..
75,000	100,000	27	79	29	16	5	..	..	..	..
100,000	125,000	9	32	88	62	20	2	..	..	..
125,000	150,000	..	5	21	58	54	29	25	4	..
150,000	175,000	..	..	..	11	24	13	4	1	1
175,000	.....	..	1	..	..	7	..	1	4	3
Unclassified		..	..	26	5	13	7	..	..	1

* Four are small cars for a 3-ft. gage line.

Aside from these outstanding developments orders for the year are strikingly varied as to types, weight and capacity. Indeed, the smaller units, so far as weight

Orders for Rail Motor Cars and Trailers

For Service in the United States

Purchaser	No.	Motor or Trailer	Type of power plant	Horse-power	Seating capacity	Length of bagg. compt. Ft. In.	Weight	Builders
Aberdeen & Rockfish	1	Motor	Gas-Mech.	125	38	7 5	40,100	Sterling-Brill
Bellevue & Cascade	1	Motor	Gasoline	33.75	..	.....	6,400	Hercules-Twin Coach
Bessemer & Lake Erie	1	Motor	Gasoline	22.50	12	.....	5,000	Twin Coach-Hercules
Chicago, Burlington & Quincy	1	Artic. Train	.....	600	72	45 6	180,000	Winton-General Electric-Budd
Chicago, Mil., St. Paul & Pacific	5	Motor	Gasoline	46.8	8	.....	14,000	Coach & Car-Buda
Escanaba & Lake Superior	1	Motor	Gasoline	25	14	5	9,000	Fairbanks-Morse
Great Northern	1	Motor	Oil-Electric	400	22	18 0	158,000	Standard Steel-Westinghouse
Midland Terminal	1	Motor	Gasoline	200	8	26 0	26,000	Company Shops, Pierce-Arrow
Pullman Company	4	Trailer	.....	...	..	.....	.....	Pullman
Union Pacific	1	Motor Train	Dis. Electric	600	116	.....	.....	Pullman
	1	Motor Train	.....	900	124	.....	.....	Pullman

Export

National R. R., Bogota, Colombia	3	Motor	Gasoline	33.75	12	.....	6,400	Hercules-Twin Coach

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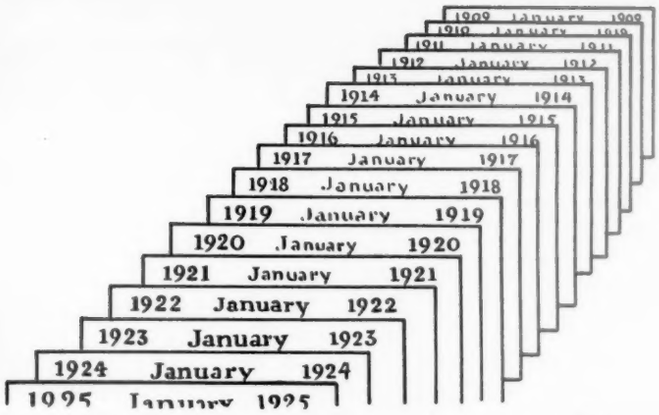
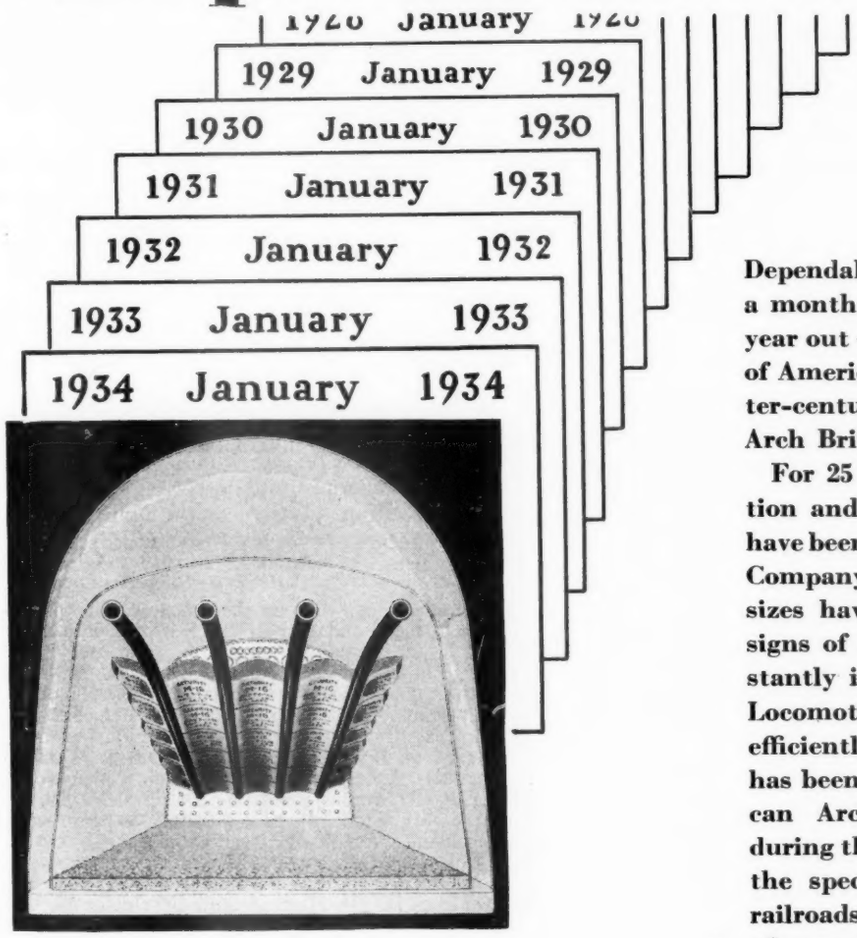
YEAR After YEAR of Dependable Service





Dependable performance — not for a month or two — but year in and year out — this is the practical value of American Arch Company's quarter-century of concentration on Arch Brick.

For 25 years, locomotive combustion and its relation to Arch Brick have been the study of American Arch Company. Arch Brick shapes and sizes have been standardized. Designs of Arch Brick have been constantly improved so that today the Locomotive Arch performs more efficiently than ever before. This has been the achievement of American Arch Company. Then, too, during these 25 years, it has perfected the special service that keeps the railroads supplied with Arch Brick of proper quality and type at all points of consumption.

In this work, American Arch Company has had the close cooperation of the country's leading makers of refractories.

HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists

NRA MEMBER U.S. WE DO OUR PART

AMERICAN ARCH CO.
INCORPORATED

Locomotive Combustion Specialists

and capacity are concerned, are practically road vehicles adapted to operate on rails—a reversion to the characteristics of 1922 which then were so rapidly outgrown.

Just as has been the case for the two preceding years, the number of units ordered in 1933 is too limited to give any clue to what the future trend in the purchase of rail-motor equipment may be when general business conditions assume a more nearly normal status. Will the light-weight, articulated high-speed train gain the field, not only that now occupied by the rail-motor car, but of general main-line service? Will it lead to the gradual introduction of lighter types of construction which can be used interchangeably with present type of cars? Will the smaller automotive units find a growing field of usefulness where service requirements are light?

The new forms of equipment present certain problems of classification and analysis which cannot be solved with entire satisfaction from the standpoint of comparability with the analyses of past years. In the tables the articulated motor trains have been reported as single motor-car units and the Pullman cars, which are designed especially for high-speed motor-train service, are classified as motor-car trailers.

On page 166 is a list of the orders for rail-motor cars placed with builders in the United States during 1933.

"More Perfect Union" Urged by Eastman

(*Continued from page 119*)

lowed traditional lines, which had their origin when operations were simpler. It is probable that the solution will be found in a staff and line form of organization, under which general policies and planning will be laid down by the staff and the execution will be left to local officers with a large measure of autonomy and jurisdiction over comparatively small units or areas.

Elimination of Competition

Public ownership and operation would, of course, eliminate competition between railroads. The question is, perhaps, academic, for even if competition between railroads were eliminated, keen competition from other transportation agencies would still exist. It is also quite possible that initiative and enterprise can be stimulated by other means than competition. Compare the railroad industry with the telephone and the electric industries. There has been much less competition in the latter, but will it be said that there has been less initiative and enterprise?

Experience with the government service in this country, leaving political patronage out of consideration, does not indicate that the government would be unduly liberal in the matter of labor relations. It has been a good employer with respect to hours of labor and vacation periods, but the necessity for this is now recognized generally. On wages the government has, on the whole, been liberal, but has never gone to extremes. On salaries it has been less generous, particularly in the higher brackets, than private employers. The civil service regulations and Congressional pressure may make it somewhat difficult to dismiss or demote employees for inefficiency, but it would not be necessary to import these regulations into railroad operations.

All the economies in operation which could be obtained through consolidation or co-ordination of privately-owned companies would be possible under public ownership and operation. In fact the possibilities are greater. To a large extent they would be labor-saving economies. Would the opposition of labor to such economies be more effective under public ownership and operation than under private? In view of the experience with the Emergency Act, it is probable that there would be no great difference in the two situations. Some means of alleviating the hardships of sudden displacements of labor must be found in any event.

Public Sentiment

There is no aggressive sentiment in favor of public ownership and operation. The financial world is less hostile to the idea than in the past, because some institutional bondholders think it might improve their situation, and because of doubt as to whether the railroads will be a source of large profits in the future. Fundamental objections to the operation of an industry by the government tend to disappear in direct ratio with profits. The man in the street appears to be indifferent rather than hostile. Labor is lukewarm. The greatest hostility is to be found among railroad managements, supply houses, and the larger shippers. The latter have always been the chief beneficiaries of competition, and they appreciate this fact.

Cost of Acquisition

Perhaps the strongest objection to public ownership and operation may be found in the present economic condition of the nation. What strain might be imposed upon national finances by acquisition of the railroad properties can not be foreseen. It is probable that the acquisition could be made without the use of cash through an exchange of securities. It is also probable, however, that the securities given in exchange would have to be interest-bearing obligations, and the sum total of fixed charges might be increased by the exchange.

When governments acquire property, they normally pay more than it is worth, just as they normally sell for less. One can foresee what might happen under present conditions. It would at once be argued that present railroad earnings are not a fair test of inherent property values, on the theory that the depression is temporary and earnings will be much higher in the future. The possible effect of dollar depreciation would also enter in. It is likely that tribunals, including courts, would give considerable weight to such arguments.

Grand Consolidation Plans—The Prince Plan

The report next discusses "grand consolidation" plans. This term is used for convenience to describe any plan for the consolidation of the railroads into a single system or a very few systems. It is pointed out that under the present law the commission is directed, in preparing a consolidation plan, to preserve competition as fully as possible, and no mention is made of economy of operation as one of the determining factors. Recently, in view of the rapid development of competition from other transportation agencies, the thought has developed that a wiser plan would be one which would give major consideration to economy and less weight to the preservation of competition. Last year the National Transportation Committee gave expression to this thought in its report.

A further development was the preparation at private expense of a plan for consolidation of the railroads into seven systems (two in the East, two in the South, and three in the West), designed to eliminate most competitive waste but yet retain the spur of the competition of two independent systems between most important points. This was the so-called "Prince Plan," prepared at the expense of Frederick H. Prince, of Boston, but following the ideas of an intensive railroad student, J. W. Barriger, 3d. Its proponents at first estimated that such a plan would save, on the basis of 1932 traffic, something like $740,000,000, or about 30 per cent of the total railroad operating expense in that year. These economies were to be secured principally by the concentration of through traffic over the routes of greatest efficiency, and the unification of terminal operations, although many other factors entered in. In view of these developments, it seemed to the Co-ordinator desirable to prosecute two studies: One into the legal phases of consolidations, including the extent to which the government may enforce them, and into the opportunity for improving the present system of public regulation which such consolidations might open up; and the other into the economies and other results of consolidations such as the "Prince Plan" proposed.

The Craven Study

The first was entrusted to Leslie Craven, now a member of the faculty of the law school of Duke University and formerly one of counsel of the Railroad Presidents' Conference Committee on Valuation. It merits most careful attention. On the subject of legal rights, Mr. Craven begins by stating the following propositions:

(1) Congress, in the exercise of its power to regulate commerce, can require compulsory unification of the various railroad companies into designated corporations;

(2) It can authorize the creation of federal corporations and can require them to acquire, and the existing companies to grant, ownership or control of the operating railroad property;

(3) It can forbid the existing companies to operate in inter-

state commerce, unless such ownership or control is conveyed to the federal companies as required.

Mr. Craven is convinced that ultimate consolidation into a few systems is desirable; that it cannot wisely be left to voluntary action, and that compulsion would eliminate the speculative and like evils which characterize voluntary action; that the process should be gradual rather than sudden; and that an arrangement can be worked out for government participation in the management which would greatly improve the present system of regulation. His general plan is to have a Federal Railroad Administrator, a non-political officer akin to the present Co-ordinator, who would set the machinery of compulsory consolidation in motion and who would select members of his staff to serve as paid public directors of the new federal corporation operating the consolidated properties. The Commission (or a special Amalgamation Board) would administer the machinery of consolidation under procedure providing for full public hearings and under standards laid down by Congress.

The voting directors would be appointed 70 per cent by the stockholders and 30 per cent by the Administrator. There would also be a "representation of the bondholders one-half as great as the public representation, but without the voting privilege." Mr. Craven proposes, in essence, a form of partnership between the public and the railroads in line with the following principle:

"It is clearly for the good of all that the quasi-public business of these non-private carriers—and in point of legal theory such is the nature of the business—shall hereafter be so conducted that the railroads and the public will recognize that they are in fact quasi-public enterprises. The railroads have never attained, nor perceived, the strength possible through being quasi-public institutions, where, because being quasi-public, they would deserve and have public support, instead of the public antagonism which has resulted from the persistent emphasis on their supposed, but not actual, private character."

His plan is developed in his report with much persuasive force.

The Poland Report on the Prince Plan

The Study of the "Prince Plan" was entrusted to William B. Poland, who has had much railroad experience, both as an engineer and as an administrator, in this and other countries. The "Prince Plan" was selected for study because no other consolidation plan of a similarly ambitious character had been worked out in anything like the detail, and because it afforded an opportunity for the study of the basic economies which would inhere in any grand plan of consolidation, however the roads were grouped. It became evident that it could not be carried out in the time limits with the facilities and staff available to the Co-ordinator alone. Therefore the Co-ordinator requested the railroads to supply advisory committees in each of the three regions, made up of officers selected by him. They did not change the broad outlines of the plan, but departed from it to some extent, with the acquiescence of the author, in the selection of routes for the concentration of traffic, and in other details. In determining whether lines could be abandoned, they assumed that future traffic might attain the 1929 volume plus 20 per cent, obviously an extreme assumption. It seems clear—and this is the judgment of Mr. Poland—that their estimate of attainable economies errs, if at all, on the conservative side, i. e., in being low.

This estimate, $218,000,000, based on 1932 traffic, is less than one-third of the original estimate. Nevertheless it is a large amount of money, which would improve railroad net earnings materially. On the general desirability of the plan the members of the committees have a variety of opinions. A majority are inclined to favor the consolidation of the railroads into a comparatively few systems, and those who have this view are mostly favorable to a scheme somewhat like that of the "Prince Plan." Other members believe that it would concentrate population and business too much at favored points, and that so radical a change in the handling of railroad traffic would be too violent a shock to the country, especially if accomplished at all suddenly. Under the "Prince Plan," or any other grand consolidation plan, there would be no substitution of public for private credit. The extent to which present financial ills would be abated would depend upon two things:

1—*The extent to which fixed charges could be reduced in the process of consolidation.* Assuming that the mergers could be effected by forced exchange of securities, a reorganization could be accomplished which would substitute for fixed-interest obligations of the weaker companies similar obligations bearing a lower rate of interest, or income bonds, or some form of stock. On the other hand, in the case of the strongest companies, it might, perhaps, prove necessary to substitute fixed-interest obligations in part for stock. Similar results might be obtained through leasing arrangements. The chances favor a material reduction in aggregate fixed charges, but there could be no certainty in advance, and certain questions would inevitably be carried to the courts. While the aggregate fixed-charge situation would probably be improved, the process would be one of levelling up and down. In other words, apart from an increase in net earnings, the credit status achieved would be better than that of some existing companies and worse than that of others.

The proponents of the "Prince Plan" believed that the prospective economies would be so attractive that the existing companies would be willing voluntarily to lease their properties to a new federal corporation or to one of the present companies, selected for the purpose, under a plan whereby the increased net earnings of the consolidated system would be shared in due proportion, this arrangement to be succeeded by gradual consolidations. There are so many debatable features in this scheme, however, and so many doubts attaching to speedy realization of the economies, that there would be little chance of such voluntary action.

2—*The extent to which the consolidations would result in economies in operating or in conservation of revenues.* Considerable time would be required before the improvement could be fully realized, both because managements and methods of operation could not be reorganized quickly and because of labor resistance. Sentiment against sudden and ruthless displacement of labor without time for readjustment is growing and will be influential. It is also to be borne in mind that abandonments, from which a substantial portion of the economies would be realized, would also be resisted and would require Commission approval.

Consolidation into a very few systems would undoubtedly improve present operating practices. Competitive wastes would ultimately be curtailed in marked degree, and, as Mr. Craven points out, this would be true not only of operating expenses but of future construction expenditures. It is his view that this latter economy would in itself justify a grand consolidation program, even if economies in operation could not at once be obtained. It would also be easier than now for the independent managements, which would be few in number instead of many, to agree upon common policies for the railroad industry, of mutual benefit.

The Craven idea of public representatives on the railroad directorates would probably improve the regulatory situation. The public directors would be adequately paid and would devote all their time to the work. The ordinary railroad directorate of unpaid members is a weak affair. Capable men concentrating on the job as public representatives could perform a very useful function. It would depend largely upon how well they were selected. The danger would be that these men, doing their work in intimate association with the private managements, would not have large public influence. There could be no sound objection, however, to trying such an arrangement.

A grand consolidation plan would be open to some of the same doubts as attach to public ownership and operation. The "Prince Plan" is open to other objections. Although it undertakes to abate competitive waste, it does not eliminate railroad competition but retains it in substantial measure. It is not difficult to sympathize with the conclusion of the National Transportation Committee that the "development of regulation and of new methods of transportation make it unnecessary for government further to create and foster competition with or among railroads as a defense against monopoly." The complete elimination or uniform reduction of competition, however, is one thing and its uneven restriction is quite another.

The consolidation, after the war, of the British railways into four systems is often cited as a model for what should be done here. The area of England, Scotland and Wales is only 38,745 square miles, as compared with 3,026,789 square miles in the continental United States (not including Alaska). In the former there are 20,419 miles of main railroad track whereas in the latter there are 249,433 miles. The differences in population and traffic are not so great, but it is quite clear that railroad consolidation on a grand scale would be a far more formidable undertaking here than there. Whatever the abstract merits might be, from the viewpoint of practicality any consolidation plan in this country which would retain the principle of competition but greatly limit its present application would arouse a storm of controversy of such intensity that it is doubtful whether the ship could ever make port.

There are, of course, various other possibilities, but none which seems to merit serious discussion. Suggestions have been offered looking toward government ownership of all or a portion of the railway properties, or for government assumption of railroad indebtedness in one way or another with principal or interest scaled down, coupled with private operation. But the divorce of operation from ownership, or at least from financial responsibility, is fundamentally unsound.

The Poland Report

Mr. Poland's report was rather favorable to the Prince plan or something like it. He also found himself

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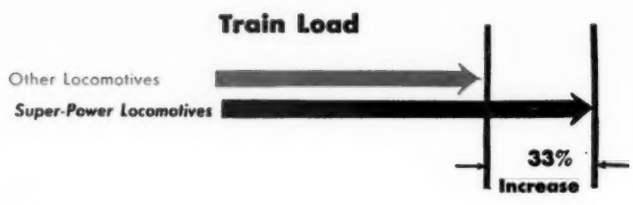
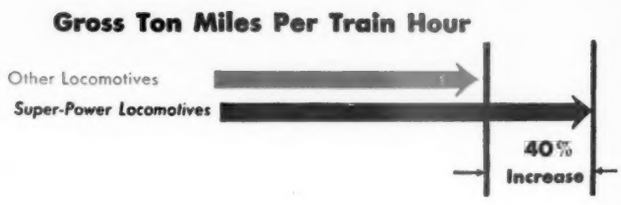
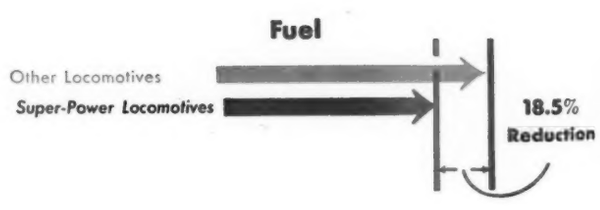
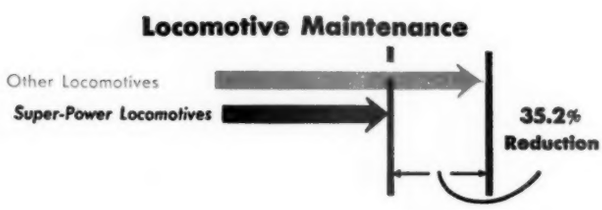
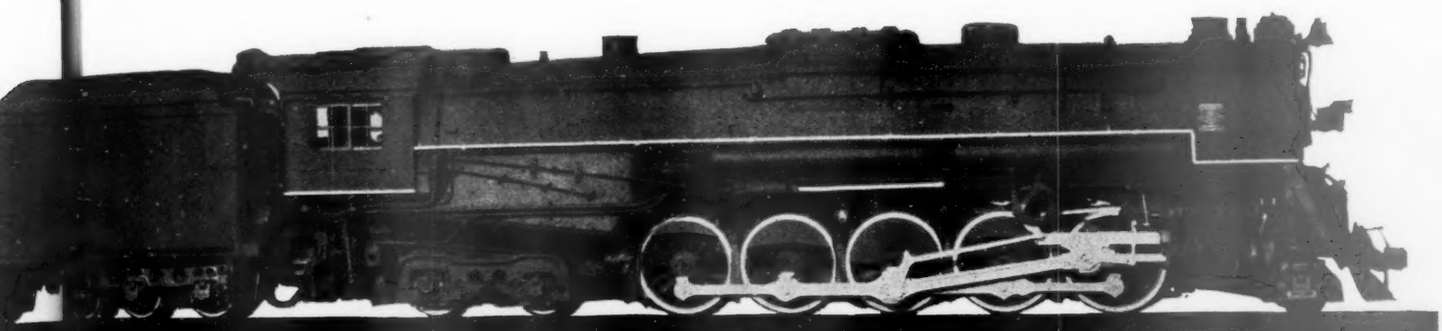








LOCOMOTIVES



Super-Power Money Earners

Obsolete locomotives slow down operation by getting in the way of fast-moving, modern power; cost more for maintenance and are out of keeping with the idea of modern, economical transportation. ● Replace them with Super-Power Money Earners. Super-Power Locomotives, in regular operation, on one railroad reduced the unit cost of operation 25 per cent.

LIMA LOCOMOTIVE WORKS INCORPORATED LIMA OHIO

in complete accord with the plan outlined by Mr. Craven. He said that the mere fact that the economies hastily estimated by the proponents of the plan are so greatly in excess of the economies conservatively estimated by the committees "should not cause us to lose sight of the fact that the seven-system plan would result in very important economies, and the reorganization of our entire railway system on a basis which should provide a field for distinguished leadership in the operation of the properties, and which as to railroad rates, wages, and returns on investments would be greatly to the advantage of the country as a whole." "It is a question," Mr. Poland said, "if co-ordination and reorganization would go sufficiently to the root of the troubles of our railways. The inevitable tendency toward consolidation, for the purpose of saving by avoiding wasteful competition, at the same time providing protection and regulation by government inspection and control, is growing in all fields of activity."

"While it would seem unwise in these days of depression to introduce another element which might contribute toward business uncertainty and unrest, it would appear desirable that an enabling act be passed by Congress authorizing consolidations to be carried out, region by region, or as an Administrator of Transportation might consider would cause the least disturbance of confidence, —postponing for the time being such features as the removal of shops or activities employing considerable numbers of men, until more prosperous days. At the same time, distressing and hurtful as these adjustments must be to a portion of our population, I believe them to be inevitable, and necessary to be faced—with every aid and assistance we can give—unless our industrial activity and national progress are to become stationary, and we fail to live up to the character we have developed over the last 300 years."

Putting all the factors together, Mr. Poland said, it does not seem probable that on the basis of 1932 operations the total economies could be in excess of the estimates based on the committee reports by more than fifty to seventy million dollars—possibly 25 per cent to 30 per cent. For 1932 the committees estimated an operating ratio of 69.76 after consolidation, as compared with 76.73 before consolidation, while the Prince staff estimate was 52.58. Capital recoveries in savings from lines abandoned, were estimated at $22,000,000, 11,000 miles of track at $2,000 a mile capital salvage, and those from reduction in car ownership at $44,000,000, while the capital expenditures required to initiate consolidations, such as extending union stations and making yard adjustments, were estimated at $45,000,000. It is stated that gathering competitive roads into single systems would undoubtedly produce very great savings in future capital expenditures. The estimate as to car ownership was based on a saving of 80,000 cars under system pooling, but later the committees received a study from O. C. Castle, director of the Car Pooling Section, which raised this estimate to 100,000 cars, which might add $3,000,000 to $5,000,000 to the estimate of savings. A tentative figure of $10,000,000 was used for economies to be effected from unification of the Chicago terminal area.

Considerable sums were listed in the Prince plan estimates, Mr. Poland said, as economies in maintenance by reducing principal routes to secondary or branch lines, where actually the maintenance expenditures on first-class lines in 1932 were shown to have been less than normal branch-line expenditures,—"and there were no savings." Moreover, he said, the low traffic requirements of 1932 seem to have been given too much weight instead of the requirements of maximum traffic of a normal period, enabling too great savings to be set up.

Opinions of Committee Members on the Prince Plan

Without attempting to quote in detail the opinions of members of the Advisory Committee on different features of the Prince plan, the report gives a summary reading in part as follows:

Opinion about equally divided among the members, one-half favoring the consolidation plan, the other objecting to it either on account of special details or on general principle. All who expressed themselves believed that the economies listed actually would be increased over those estimated. Majority opinion was that systems were too large for best operating results. Majority opinion was pronounced that important economies could not be realized by voluntary co-ordination, although some opposed this view. Most of committees' membership believed the effect on communities would be bad, because of abandoned shops, reduced train service, etc.

The principal differences between the proposals under the Prince plan and the recommendations of the Advisory Committees occur in Systems 1 and 2, Eastern territory. Here, as outlined in the report of the Eastern committee, there is a material difference of opinion as to the most economical routing of traffic between St. Louis, Chicago, and the East. The committee used the Baltimore & Ohio to a much greater extent than proposed in the Prince plan. Contrary to the plan, the committee was of the opinion that between Chicago and Pittsburgh the Pennsylvania alone would not have capacity to handle the entire maximum traffic, and used the Baltimore & Ohio as the principal line. It also continued the Baltimore & Ohio as a principal line between St. Louis and Washington, D. C. Pittsburgh is made the main distributing traffic center for the region and the Baltimore & Ohio line, Pittsburgh to Washington, is made a principal line. Between Washington and New York, the committee does not approve abandoning either the Baltimore & Ohio or the Pennsylvania line, in part, as outlined in the Prince plan. There are also differences in the handling of the coal traffic in Eastern territory, both anthracite and bituminous, and less terminal abandonments.

A Plan for Compensating Released Labor

Mr. Poland, in his report, submitted a plan to take care of men released as the result of consolidation as follows:

The total number of employees of Class I railways as of December 31, 1932, was 1,010,000, approximately. Of this number the Advisory Committees estimate that to carry out the consolidations of the Seven-Party plan, it would be necessary to lay off 76,000 men or 7½ per cent of the total. Of this number, 20 per cent or about 16,000 men are estimated to be 55 years of age or older. These men, once laid off, are considered to be permanently out of railway service. It is computed that the average yearly pay of this class is $1,700. It is proposed to pension them at the rate of $720 per annum or $60 per month, a substantially higher rate than is customary in industrial or other railway corporations at present. The "complete expectance of life" for the class, 55 to 75 years, seems to work out from actuarial tables at 12.8 years. $720 x 16,000 men equals $11,520,000. This pension would theoretically continue for an average duration of 12.8 years.

To the remaining 60,000 men under 55 years of age, it is proposed to pay an allowance of one-half the averaged full pay rate of their positions, let us say in 1930. This pay, it is assumed, would be about $1,400 per annum. Furlough allowance therefore would be $700 x 60,000 men, equal to $42,000,000 per annum. It would be proposed to pay this allowance for a period not to exceed 4 years, or until other equally good work could be provided through an employment board which is to be set up. A 10 per cent to 15 per cent increase in railroad activity would undoubtedly wipe out this small number of furloughed men, amounting as above, to but 7½ per cent of the total. From the start this annual allowance would decrease rapidly.

For the first year, therefore, total pension payments and allowances under this plan might amount to $53,500,000, which would be deducted from the $218,000,000 saved by consolidation. This deduction would amount to 25 per cent of the above saving. It might be safe to conclude that, in general, employees released may be adequately provided for out of a charge of 25 per cent the first year on the annual economies realized from consolidation, and that at least in periods when there is some hope of business recovery this annual charge will rapidly decrease.

NEWS

Fletcher and McReynolds Address Advertising Men

Speak at annual meeting of American Association of Railway Advertising Agents

The American Association of Railway Advertising Agents held its annual meeting at the Hotel Commodore in New York on January 19. Officers elected for the ensuing year are as follows: President, W. W. Rodie (C., R. I. & P.); vice-presidents, O. J. McGillis (G. N.), Holcombe Parkes (N. & W.), H. B. Northcott (U. P.), D. E. Caesar (S. P.), G. A. Semmlow (C., M., St. P. & P.); treasurer, H. P. Riccadonna (C. G. W.), and secretary, E. A. Abbott, of Chicago.

Speakers at the luncheon held in connection with the meeting were R. V. Fletcher, general counsel of the Association of Railway Executives, and E. H. McReynolds, assistant to the president of the Missouri Pacific.

After suggesting that the railway advertising agents might well consider advertising the general aspects of railroading, Judge Fletcher continued to demonstrate the fallacy of the contention that railroads are obsolete. He pointed out that from 1923 to 1932 the Class I railroads had expended $7,270,822,000 for equipment and improvements in roadway and structures, with the result that the speed of freight trains has increased 50 per cent and operating expenses have been cut an average of $770,000,000 per year.

Continuing, Judge Fletcher denied that railroads are the playthings of financiers and are owned in the financial centers, particularly New York. He pointed out in this connection that there are more than sixty million persons directly interested in railroad securities or dependent on the earnings of such securities for their livelihood and for protection in their old age.

Mr. McReynolds discussed briefly the problems of the railway advertising agent. He suggested that railways err in basing their advertising budgets on passenger revenues alone. No advertising man in any other business, he said, would concentrate his advertising on an item which accounted for but 15 per cent of revenues. It was, therefore, Mr. McReynolds' idea that railway advertising budgets should not only be based on gross revenues but they should include plans for aggressive advertising of freight as well as passenger service.

Mr. McReynolds endorsed joint railway advertising "in a general way." He would like to see a three or five-year experiment in connection with which each road would appropriate, say, $1 per mile per three-month period. Thus an annual fund of about $1,000,000 would be available, and Mr. McReynolds would expend it for institutional advertising of an educational nature. It would not be easy to consummate such a plan, the speaker warned, and thus he would not favor the attempt unless it were to be given a fair test over a period of not less than three years. Further, Mr. McReynolds thinks that better results would follow if the joint advertising were done by "some independent fearless agency that can't be punished."

In discussing accounting for advertising Mr. McReynolds said that the association should study these charges and evolve definite recommendations which would mitigate the present burden of extraneous charges borne by advertising accounts.

Southern Finds Reduced Fares Attracting Traffic

Reductions in basic fares which, together with the elimination of Pullman surcharges, were inaugurated on December 1, 1933, have brought to the Southern a marked increase in traffic as well as "a substantial increase in passenger revenue." For the period December—January to date, Southern traffic officers report, the increase in the number of passengers carried in trains arriving and leaving terminals of the Southern was approximately 80 per cent over a similar period a year ago; station-to-station travel on the Southern "has shown an even greater increase."

Florida travel is also better than last year and it is anticipated that there will be a further increase during the remainder of the season.

Dismissal of Southeastern Express Rate Complaint Recommended

Examiner R. G. Taylor and Leslie H. McDaniel of the Interstate Commerce Commission have submitted a proposed report recommending a finding by the commission that reduced less-than-carload interstate express rates of the Southeastern Express Company between points in the Southeast, established to meet motor truck competition, regarding which a complaint was filed by the American Highway Freight Association, Inc., are not in violation of sections 1, 2, or 6 of the interstate commerce act. The rates involved were published on traffic over rail lines with storedoor pick-up and delivery and are no higher and generally less than l.c.l. freight rates. Complainant's contention that the contracts between the express company and the rail defendants are "devices" and that section 1 of the Elkins act is violated, "should not be sustained," the report says.

Progress in Settling the Company Union Question

Co-ordinator Eastman addresses a further communication to the regional committees

Co-ordinator Eastman on January 22 addressed a further communication to the three Regional Co-ordinating Committees on the "company union" question.

In a communication of December 7 he had offered seven definite suggestions, "to the end that railroad labor practices be brought into entire harmony with the law and that a permanent basis be laid for peaceful and co-operative relations." He also expressed the hope that the committees would assume the leadership necessary to accomplish the desired results.

Later, on January 4, he met with the three committees in joint conference and it was agreed that he should receive a further report in writing informing him of the action which the committees had taken or contemplated taking. He has since received such reports, as well as reports from various individual companies.

"It appears that the committees of both the eastern and the southern groups believe that they have no jurisdiction to take action in regard to this matter as committees under the Emergency Act, except so far as the labor practices in question may be found to constitute waste and preventable expense," Mr. Eastman says, "nevertheless, they have recommended to the railroads which they represent the posting of an appropriate notice to employees, as proposed in my communication of December 7.

"These proposed notices in some respects go beyond my suggestion, and call for some comment from me. I call attention to the first two paragraphs, reading as follows:

"'Reports have been and are now being widely circulated to the effect that the law or the Federal Co-ordinator of Transportation has outlawed labor oranizations or associations of employees whose membership and representatives are confined to the employees of a single railroad company or system. Such reports are without foundation or justification because such organizations are not oulawed by the Statute.

"'All the labor organizations and associations at this time representing employees in their dealings with this Company are duly designated and authorized to represent employees in accordance with the requirements of the law.'

"It is true that neither the Emergency Act nor I have 'outlawed' so-called company unions. Such unions are not pro-

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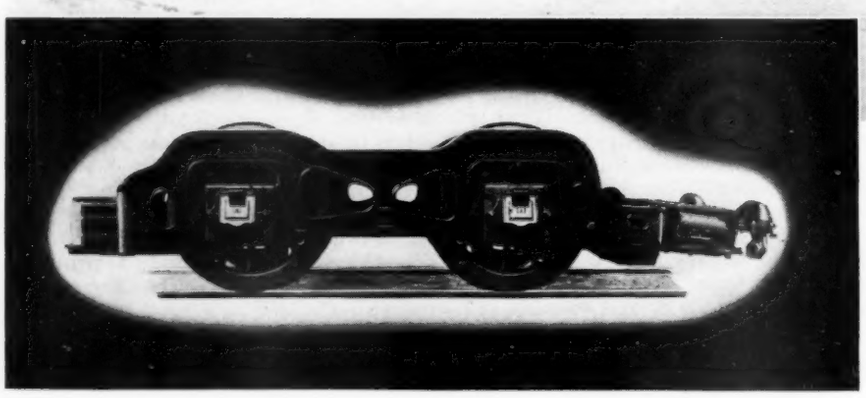
THE 1934 LOCOMOTIVE will us



hibited, if the employees wish organizations of this character. On the other hand, the act does provide that in the organization of committees to represent the employees thereunder, only the labor organizations shall take part which 'entered into the agreements of January 31, 1932, and December 21, 1932, with duly authorized representatives of the carriers, determining the wage payments of the employees of the carriers,' or 'such other railroad labor organizations as may be duly designated and authorized to represent employees in accordance with the requirements of the Railway Labor Act." The so-called company unions plainly do not fall within the first category, and the question is whether they fall within the second. In the proposed notice, the opinion is expressed that they do. It should be clearly understood, however, that this is only the carriers' opinion, not mine.

"The question is whether the company unions have been organized and selected to represent the employees 'without interference, influence, or coercion' on the part of the railroads. The information in my possession, derived largely from returns by the railroads to my questionnaire, indicates that many of them have not been so organized and selected. It is, of course, a question of fact in each case. I deem it necessary to record this qualification of the accuracy of the statement above quoted, in the proposed notice.

"The Western committee forwarded a copy of my communication of December 7 to each of the western railroads, requesting that it be advised whether or not the seven suggestions would be complied with. It appears that the railroads have followed the suggestions in one way or another quite generally.

"At the conference on January 4 it was also indicated that every effort would be made by the individual railroads to guard against the victimization by subordinate officials of employees who exercise their right to join the labor organization of their choice, and that any complaints with respect to such victimization which I receive would be handled promptly by each railroad president, if referred to him by me. This is being done.

"While the progress in dealing with this labor matter is gratifying, I have deemed it desirable to obtain from each individual railroad definite information as to the extent and manner of compliance with the suggestions which I offered in my communication of December 7, and am transmitting such requests directly to them. It is, of course, a matter which needs to be followed up closely, in order that all possible steps be taken to insure conformity with the present provisions of the law."

In addition to the paragraphs quoted by Mr. Eastman the proposed notices include the following:

"Federal statutes provide that all employees are free to join or not to join any labor organization or association and will not be penalized, disciplined or prejudiced in any way by this Company.

"All employees have the right without interference, influence or coercion to designate their own representatives by such means of collective action as they may see fit. No person, whether an officer or employee of this Company or one not in the service has the right to influence, interfere with, or coerce any employee in his choice to continue or to surrender his connection with, or to join or not to join any such organization or association."

Freight Car Loading

Revenue freight car loading in the week ended January 13, totaled 555,627 cars, an increase of 55,688 cars as compared with the week before, which included a holiday, and an increase of 45,734 cars as compared with the corresponding week of last year. All districts reported increases as compared with the corresponding week of last year and the Eastern and Pocahontas districts showed increases as compared with 1932. Increases were shown as compared with the corresponding week of last year as to all commodity classifications except merchandise, grain and grain products, and live stock. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading
Week ended Saturday, January 13, 1934

Districts	1934	1933
Eastern	131,702	116,624
Allegheny	108,546	94,077
Pocahontas	40,579	37,478
Southern	82,592	80,623
Northwestern	63,892	57,394
Central Western	82,677	78,253
Southwestern	45,639	45,444
Total Western Districts	192,208	181,091
Total All Roads	555,627	509,983
Commodities		
Grain and Grain Products	29,559	30,558
Live Stock	17,787	18,161
Coal	137,036	118,809
Coke	7,295	5,589
Forest Products	18,146	14,094
Ore	3,218	2,424
Mdse. L. C. L.	158,330	159,005
Miscellaneous	184,256	161,253
January 13	555,627	509,893
January 6	499,939	439,469
Cumulative total, 2 weeks	1,055,566	949,362

In Canada in the week ended January 13 loadings totaled 41,389 cars, which was 8,763 cars, or 27 per cent, heavier than last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
Jan. 13, 1934	41,389	21,015
Jan. 6, 1934	34,362	18,791
Dec. 30, 1933	29,360	14,269
Jan. 14, 1933	32,626	17,070
Cumulative Totals for Canada:		
Jan. 13, 1934	75,751	39,806
Jan. 14, 1933	59,408	32,065
Jan. 16, 1932	79,026	39,447

Frank J. Sprague Again Honored

At the opening session of the annual meeting of the American Institute of Electrical Engineers at the Engineering Societies Building in New York on Wednesday of this week, a three-quarter relief bronze portrait plaque of Frank J. Sprague was presented to the Institute. The presentation was made by Frank Hedley, president of the Interborough Rapid Transit Company, who spoke of Mr. Sprague as the "Father of Rapid Transit." He told of Mr. Sprague's work in installing the first electric railway system of any size in the world at Richmond, Va., in 1887, and commented upon the remarkable contribution to high speed electric traction made by the invention of Mr. Sprague's multiple-unit system of train operation in 1895. The plaque was accepted for the Institute by its president, Dr. John B. Whitehead. Florence M. Darnault, the sculptor, was also introduced.

Mr. Sprague was present at the ceremony; he was given an ovation and made a brief and characteristic address. He is a former president of the Institute and was the recipient of its Edison Medal in 1910.

Advertising Helps Katy

Advertising was a potent factor in the success of the Missouri-Kansas-Texas during 1933, according to M. H. Cahill, chairman of the board of directors and president, in reporting to the diretors of that road at a meeting in New York on January 16. He said that as a result of an aggressive newspaper campaign during the last half of the year the Katy has been able to hold its gross revenues to within $1,553,807 of the total for the previous year, in spite of heavy declines in traffic during the first four months, and shortages, throughout the year, in the movement of wheat, oil and cotton. Estimated figures for December, Mr. Cahill said, show that the Katy's gross revenue last year was $25,686,020, as compared with $27,239,827 in 1932. Earnings were estimated at $3,298,404, to apply on fixed charges of $4,179,763.

The Katy's advertising campaign consisted of a series of full-page messages over Mr. Cahill's signature appealing to the public in the Southwest for patronage and pointing out the part the road has played in the development of that section of the country and the continued improvement in its service in the depression years. The campaign, coupled with an aggressive employee solicitation effort, largely offset the general traffic losses early in the year and the losses occasioned later by failure of the wheat crop in Oklahoma and Texas, by unsettled conditions in the mid-continent oil field and by the retarded movement of cotton as a result of federal loans to growers.

Newspaper advertising and the establishing of overnight freight service between several important Texas cities resulted in a decided increase in l.c.l traffic during the year, Mr. Cahill said, citing a report by the M-K-T Transportation Company, a subsidiary handling the pick-up and delivery of merchandise freight, showing an increase in traffic of more than 2,000,000 lb. a month for the last six months of 1933 and a total gain of 19,000,000 lb. for the year. In the belief that the upward swing will continue, Mr. Cahill told his directors that he had approved plans for the most comprehensive maintenance program considered in years. Twenty-five miles of main line track are to be relaid with 112-lb. rails in co-operation with the government's steel-buying project, although the Katy will not avail itself of the federal loan offer for the purpose. Preliminary forces already are at work in several of the Katy shops preparing for their opening for the repairing and rebuilding of several hundred freight and passenger cars and locomotives, which will give employment to approximately 1,000 men for several months.

A. S. C. E. Holds Annual Meeting at New York

Many of program's features were of direct and indirect interest to railway men

The eighty-first annual meeting of the American Society of Civil Engineers was held in New York, January 17-20, and, among the many features of the program there were several of direct or indirect interest to railway men. The only railway officer specifically honored at the meeting was D. J. Kerr, assistant to vice-president, operating department, Great Northern, St. Paul, Minn., who was presented the Arthur M. Wellington prize for Part 1 of a paper entitled "The Eight-Mile Cascade Tunnel, Great Northern Railway; Preliminary Studies and Results of Improving Cascade Crossing."

Of the papers presented, the two of most direct interest to railway men generally were one on the "Development and Coordination of Rail, Highway and Waterway Systems", by C. O. Sherrill, Cincinnati, Ohio, and one on "The Equitable Theory of Governmental Ownership and Operation", by Frederick H. McDonald, consulting engineer, Atlanta, Ga.

Mr. Sherrill decried the lack of coordination which exists in the transportation industry, and called for governmental action to remedy this situation. He criticised railway managements for what he termed lack of foresight in adapting themselves to changed conditions and in not making use of the newer forms of transport to the benefit of both the railways and the public. He condoned certain governmental work in the form of inland waterway development, but he condemned many waterway projects authorized by Congress against the specific recommendations of United States engineers; projects which, he said, it is evident were authorized solely for political purposes and because communities wanted the waterway to use merely as a club over the railways to secure low freight rates, and with no thought of using the waterways actively for traffic. As a specific case in point, Mr. Sherrill referred to the development of the Missouri river above St. Louis, Mo., which was approved by Congress, notwithstanding the positive recommendation of the government engineers against it as being unsound economically.

Mr. Sherrill advocated a permanent commission to be created by Congress to develop and maintain a comprehensive plan for the national transportation system of the United States, designed to give the public the best and lowest cost transportation in time of peace and adequate facilities in time of war, using all means available to this end.

In the paper on the "Equitable Theory of Governmental Ownership and Operation", which was an unusually able treatise on this subject, and which provoked much discussion, Mr. McDonald challenged the desirability of the government entering into forms of public enterprise in competition with established private business, and, with equal emphasis, the equity of the government establishing less than self-supporting rate structures by those of its agencies engaged in the operation of revenue-producing services. He said, in part, as follows:

"Where governmental agencies are engaged in the operation of revenue-producing services, the minimum selling basis of the service should, by mandate, be sufficient to pay all costs, including operating costs, interest, refunding or depreciation charges and taxes. Only such a conception can be sustained as an equitable theory of government ownership or operation. . .

"It seems reasonable to conclude that the equities of both the individual and of the whole of the people can best be maintained by the exclusion of government from ownership in revenue-producing activities, except either on the basis of mandatory self-supporting rate structures, or on a co-operative basis of subsidy and mutual effort in support of non-competitive private enterprise where gains to the public welfare can thereby be achieved for a quicker and wider economic and social betterment. . . Let government hesitate on the threshold of every new endeavor blazoned for the benefit of the few, to mark and measure the cost to the many; and before entering on the destruction of the existing, let it explore the possibilities of boosting the existing into newer fields of accomplishments. . ."

Grain Rate Case Assigned for Argument

The Interstate Commerce Commission has assigned the western grain rate case for oral argument at Washington beginning on February 7.

Industrial Expansion on Katy Exceeds That of Last Few Years

A total of 190 new industries were established along the Missouri-Kansas-Texas, during 1933, as compared with 162 in 1932 and 168 in 1931. In investment, number of persons employed and expected yearly tonnage, the 1933 new industries and expansions also equal or exceed those of either of the two preceding years.

Life of R. F. C. Extended

Congress has passed and the President has signed the bill extending the life of the Reconstruction Finance Corporation, which would have expired this month, to February 1, 1935, and increasing its power to issue debentures by $850,000,000. This means that the R. F. C. will be able to participate in the refunding of several large railroad maturities, regarding which negotiations have been in progress.

R. F. C. Extension Bill Passed by Congress

The bill providing for an extension of the life of the Reconstruction Finance Corporation to February 1, 1935, and increasing the notes or debentures which it may issue by $850,000,000 was passed by the House and the Senate on January 15. It has been estimated that about $75,000,000 of the additional amount will be required for railroads loans in addition to available funds.

Further Delay on Eastern Passenger Rate Reduction

Action on matter deferred at January 18 meeting—Other questions also considered

Action in connection with the proposal that Eastern railroads follow the lead of Western and Southern roads in installing reduced basic passenger rates was again deferred, after being considered at a meeting of the Eastern Presidents' Conference in New York on January 18. The Eastern executives, after hearing the report of their passenger rate committee, decided to await further study of results of the Western and Southern experiments. Decision on the matter was thus postponed until March.

The passenger fare committee is headed by F. E. Williamson, president of the New York Central. Other members are W. W. Atterbury, president of the Pennsylvania; Daniel Willard, president of the Baltimore & Ohio; C. E. Denny, president of the Erie; J. M. Davis, president of the Delaware, Lackawanna & Western, and J. J. Pelley, president of the New York, New Haven & Hartford. Mr. Pelley became a member of the committee at the January 18 meeting.

Another committee which was chosen by the Conference at its December meeting to meet with similar committees of the West and South to discuss with representatives of railway labor "matters of mutual interest" has as yet held no such meeting. This committee consists of Mr. Atterbury (chairman), Mr. Pelley, J. J. Bernet, president of the Chesapeake & Ohio, and C. H. Ewing, president of the Reading.

The question of action to be taken after the expiration of the present agreement with employees on the 10 per cent deduction in wages was not discussed. The conference did, however, place at the disposal of the Eastern Regional Co-ordinating Committee the facilities of the Bureau of Information, Eastern Railroads, in order to aid in the investigation of employee organizations which has been requested by Co-ordinator Joseph B. Eastman.

Also, the conference recommended that bulletins be posted by individual railways to inform their employees of the freedom which, under the law, the latter now enjoy in the matter of affiliation or non-affiliation with any labor organization. Action in this connection was taken at the request of Co-ordinator Eastman, and one of the bulletins—that posted by the Pennsylvania—reads as follows:

"Statements have been made and are now being circulated that Federal statutes now effective outlaw associations of employees on single railroads or railroad systems These statements are not true.

"In order that there may be no misunderstanding as to the policy of this company, this notice is posted as advice to all employees of the company that they are free to join or not to join any labor organization, and they will in no way be penalized or prejudiced by the management of this company because of their choice.

"The policy of this company in this respect has not changed."

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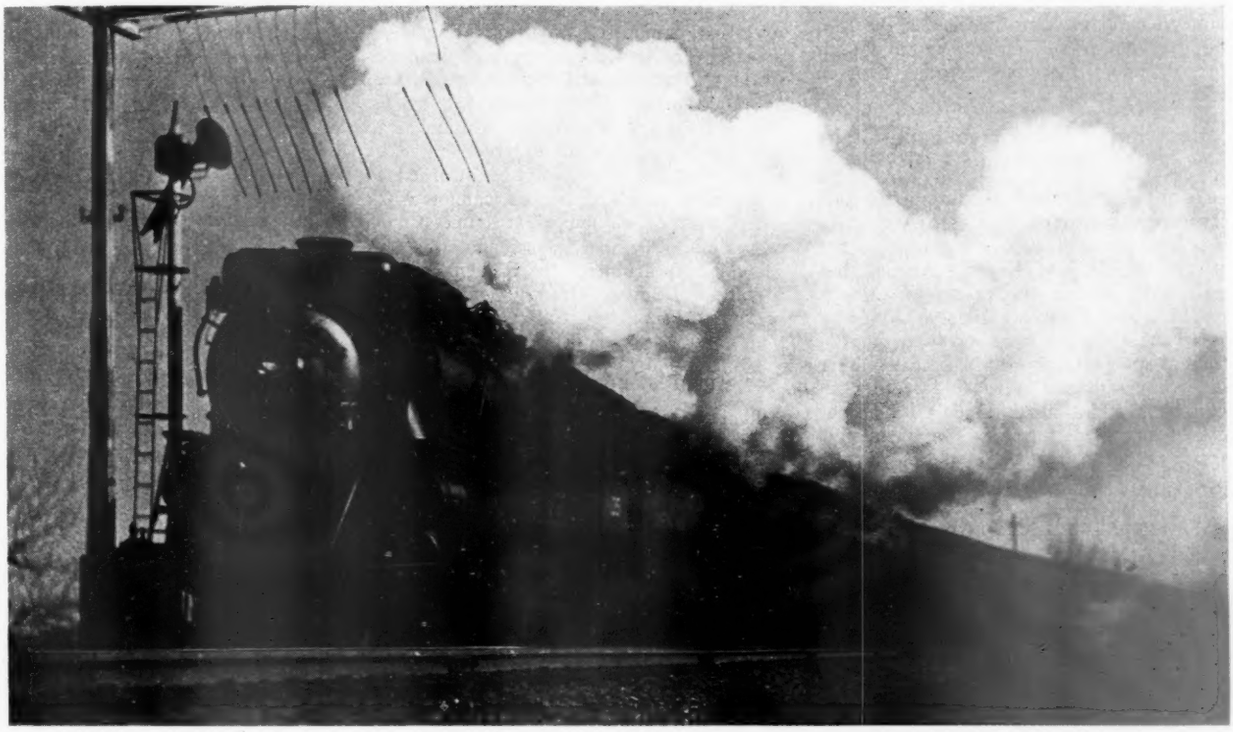

evaporating surface, within a given sized boiler. It has been an important factor in making possible the super steam locomotive of today.

Within recent years, in an effort to still further add capacity and improve the fuel rate, preheating feed water with exhaust steam has been recognized as a necessary factor in the super steam locomotive. Two types of Elesco feed water heating equipment have been developed . . . the closed type with boiler feed pump and the injector or open type. It is unusual today for a locomotive to be built without some form of exhaust-steam feed water heating equipment.

Whatever happens in locomotive design improvement, it will be to the end of greater capacity and a better fuel rate, for which Elesco superheaters and Elesco feed water heating equipment are of utmost importance. Not only has Elesco superheating and feed water heating equipment largely made possible the modern super steam locomotive, but continual improvement and development assure them an important place in the designs of new power.

Share-Expense Travel Prohibited in Texas

The business of conducting share-expense trips by other than common carriers is prohibited by a new Texas law regulating transportation agencies and automobile travel bureaus, which became effective on January 12. The law prohibits transportation for hire on the highways except by common carriers operating under the law, and prevents travel bureaus from obtaining passengers for share-expense trips in private automobiles.

Express Rates Subject to Land-Grant Deductions

Comptroller General McCarl, after further consideration of rulings of his office that land-grant deductions apply to the rates of the Railway Express Agency, has declined to modify the rulings of March 12, 1929, and February 10, 1930, holding that charges for the transportation of government property by the company over land-grant railroads were subject to such deductions and that there was no proper basis for considering any "supplemental" service performed by the express company itself.

Railway Labor Executives Plan Legislative Program

The Railway Labor Executives' Association held a four-day meeting in Washington last week to lay plans for pressing its program of legislation. A delegation headed by A. F. Whitney, chairman of the association, called on the President at the White House on Friday to discuss the program.

Chairman Dill, of the Senate committee on interstate commerce, has appointed a sub-committee to consider railroad pension bills, such as S. 817 and S. 1529, introduced at the last session by Senators Wagner and Hatfield, but said that the sub-committee probably would await a report from Co-ordinator Eastman on the subject before taking up the bills. The sub-committee includes Senators Wagner, Hatfield, Bulkley, Wheeler and Hastings.

Hearings on Bus and Truck Bill

Hearings before the House committee on interstate and foreign commerce on the Rayburn bill providing for a system of regulation of bus and truck transportation, which were begun on January 17, were continued on January 18 and 19 and resumed on January 23. On the second day of the hearing John E. Benton, general solicitor of the National Association of Railroad and Utilities Commissioners described the purpose of the bill section by section and on the following day J. L. Keeshin, president of the newly organized National Highway Freight Association, testified in support of the bill. He said that two organizations of truck operators, one favoring regulation and one that did not, were practically forced to merge for the purpose of working out a N. R. A. code for the industry, but that members of his organization believe that code regulation does not go far enough. He said he believed the new organization would have members from all states within 90 days.

Testimony in opposition to the bill on behalf of the National Dairy Union and the American Association of Creamery Butter Manufacturers was presented on January 23, while the National League of Commission Merchants urged a number of changes in the bill. The Chamber of Commerce of the United States endorsed the bill in principle. On January 24 C. E. Childe, chairman of the highway transportation committee of the National Industrial Traffic League appeared in opposition to the proposed regulation of rates or requirement of certificates for trucks. He said the league took no position as to bus regulation, but as to truck rates he asked that an opportunity be afforded to see if the truck operators cannot work out a plan of minimum rates under code regulation. P. F. Scheunemann, of Minneapolis, appearing for the Citizens' Transportation League, strongly supported a system of regulation of truck transportation.

Royal Scot Welcomed Home

The arrival of the Royal Scot, of the London, Midland & Scottish, at London, England, on December 15, following its return from America, was made the occasion of a great welcome at Euston Station, where a distinguished party assembled at No. 6 platform. The platform was decorated and music was furnished by Scotch pipers. Among those present was the Hon. Walter Runciman, president of the Board of Trade. Sir Josiah Stamp read a message from King George, and then to each of the employees of the company who made the tour to America he gave inscribed watches.

The train was visited by over 30,000 people within a day or two, and the company announced that it would make a tour of England and Scotland, to be exhibited at 14 cities.

P & S Division Announces Contest

A contest for the best paper relating to railway purchasing and stores work has been announced by the Purchases and Stores Division, American Railway Association. As in contests held in previous years, all employees below the rank of assistant purchasing agent and assistant general storekeeper are eligible.

Three members of the general committee of the division have been appointed to judge the papers, as follows: J. C. Kirk, assistant general storekeeper, Chicago, Rock Island & Pacific; G. H. Walder, purchasing agent, Chicago, Milwaukee, St. Paul & Pacific; and L. B. Wood, general storekeeper and assistant purchasing agent, Southern Pacific lines in Texas and Louisiana. Each paper must contain 1,000 to 3,000 words and must be submitted to W. J. Farrell, secretary, Division VI, Purchases and Stores Division, American Railway Association, 30 Vesey street, New York City, not later than April 1.

Pullman Car Movement to World's Fair

A count of Pullman sleeping cars used to carry passengers to Chicago during the Century of Progress fair, June 1 to October 31, 1933, shows a total of 80,609 cars (an average of 527 cars a day). Of these 62,275 were regular line or normal service cars and 18,334 were added to take care of the enlarged traffic demand. A total of 942,155 Pullman passengers were carried into Chicago during this period.

More than half the passengers using Pullman service to Chicago during the Exposition came from the East, and more than two-thirds of the extra cars operated came from eastern points. In addition to this, the number of passengers carried per car operated was above normal, especially so on the days when the low railroad and Pullman rates applied. One particular train was operated in not less than seven sections for Saturday movements and on several occasions ran in nine sections. More than 1,500 passengers arrived in Chicago on that train on one day.

Hearing on U. S. Steel Interest in E. J. & E.

A hearing on a petition filed by the government, in which it seeks to force the United States Steel Corporation either to sell the Elgin, Joliet & Eastern or to discontinue having its products carried on the road, was opened in the United States district court at Chicago on January 15 before Federal Judge Charles E. Woodward. The government asserts that 60 per cent of the road's business comes from the steel corporation and contends that this is in violation of the commodities clause of the Interstate Commerce Act which prohibits a railroad from transporting articles manufactured by it or under its authority. In this case, the road is a subsidiary. Attorneys for the steel corporation insist that ownership of the road by the parent organization is very remote and that the steel corporation does not participate in the operation. The railroad was incorporated on December 4, 1888, as a consolidation of two companies of similar name. It operates 447 miles of lines in Illinois and Indiana, with the greater part in Illinois. It serves as a belt line in the Chicago terminal area.

New Committee Chairmen for A. R. E. A.

Changes among the chairmen of its standing committees, involving the appointment of four new chairmen, have been announced by the American Railway Engineering Association. The committees involved, together with the new and retiring chairmen, are: Iron and Steel Structures, G. A. Haggander, bridge engineer, C. B. & Q., Chicago, who succeeds A. R. Wilson, engineer of bridges and buildings, Penna., Philadelphia, Pa.; Electricity, J. V. B. Duer, electrical engineer, Penna., Philadelphia, Pa., succeeding W. M. Vandersluis, general superintendent telegraph and signals, I. C., Chicago; Economics of Railway Labor, F. S. Schwinn, assistant chief engineer, M. P., Houston, Tex., who succeeds Lem Adams, chief engineer, Oxweld Railroad Service Company, Chicago; and Waterways and Harbors, D. J. Brumley, chief engineer, Chicago Terminal Improvement, I. C., Chicago, who succeeds W. C. Swartout, assistant engineer, M. P., St. Louis, Mo.

In addition to these changes, a new com-

mittee, to be known as the Special Committee on Complete Roadway and Trac Structure, has been organized, with John V. Neubert, chief engineer maintenance of way, N. Y. C., New York, as chairman.

A. R. E. A. Voting on New Rail Joint Bar

The American Railway Engineering Association is voting on the adoption of a standard rail joint for 112-lb. rail, letter ballots having been mailed to the members on January 20. Heretofore the association has refrained from recommending any standard design for rail joints, but since the recent adoption of rail sections of 112 lb. and 131 lb. as the only recommended weights above 100 lb., the rail committee has designed a joint bar for 112-lb. rail, the drawings for which accompanied the letter ballot. If this design is approved by a majority of those voting before February 15, the matter will be submitted to the board of directors of the American Railway Association for its endorsement and approval.

The new bars are of the symmetrical type and may be either 24 or 36 in. long, for 4 or 6 bolts, respectively. The net weight per pair is 75.4 lb. for the 24-in. size and 113.2 lb. for the 36-in. bars. Other physical properties include moment of inertia, one bar, 11.8, two bars, 23.6; section modulus above the neutral axis, one bar, 5.2, two bars, 10.3; section modulus below the neutral axis, one bar, 4.9, two bars, 9.9; area, one bar, 5.67 sq. in., two bars, 11.34 sq. in.

A. R. E. A. Makes Nominations for 1934

The Nominating committee of the American Railway Engineering Association has reported the following nominations for 1934: President, John E. Armstrong, assistant chief engineer, C. P. R., Montreal, Que.; second vice-president, A. R. Wilson, engineer of bridges and buildings, Penna., Philadelphia, Pa.; secretary, E. H. Fritch, Chicago; treasurer, A. F. Blaess, chief engineer, I. C., Chicago. In addition, Robert H. Ford, assistant chief engineer, C. R. I. & P., Chicago, automatically steps up from second vice-president to first vice-president.

Directors (three to be elected): R. C. Bardwell, superintendent water supply, C. & O., Richmond, Va.; R. S. Belcher, manager treating plants, A. T. & S. F., Topeka, Kan.; F. L. C. Bond, general superintendent, Central region, C. P. R., Montreal, Que.; W. J. Burton, assistant to chief engineer, M. P., St. Louis, Mo.; E. L. Crugar, chief engineer, Wabash, St. Louis, Mo.; J. A. Peabody, engineer maintenance, C. & N. W., Chicago; W. H. Penfield, engineer maintenance of way, C. M. St. P. & P., Chicago; C. C. Williams, dean, college of engineering, University of Iowa, Iowa City, Iowa; C. A. Wilson, consulting engineer, C. U. T., Cincinnati, Ohio.

Nominating committee (five to be elected): E. H. Barnhart, assistant division engineer, B. & O., Dayton, Ohio; W. S. Burnett, chief engineer, C. C. C. & S. T. L., Cincinnati, Ohio; H. A. Dixon, chief engineer, Western region, C. N. R., Winnipeg, Man.; Robert Faries, assistant chief engineer-maintenance, Penna., Philadelphia, Pa.; J. M. Farrin, special engineer, I. C., Chicago; John Foley, forester, Penna., Philadelphia, Pa.; William Michel, chief engineer, engineering advisory committee, Van Sweringen Lines, Cleveland, Ohio; A. A. Miller, engineer maintenance of way, M. P., St. Louis, Mo.; W. A. Murray, engineer maintenance of way, N. Y. C., New York; C. B. Stanton, professor of civil engineering, Carnegie Institute of Technology, Pittsburgh, Pa.

Debate on St. Lawrence Seaway

Debate on the St. Lawrence waterway treaty in the Senate has continued in a desultory way during the past week, but it is understood that it is not the intention to press it for an early vote, and predictions are being generally made that the proponents of the treaty will be unable to muster sufficient votes for its ratification.

Meanwhile the White House is keeping up a propaganda on the subject. When the President on January 10 sent a message to the Senate requesting ratification he accompanied it with a voluminous report summarizing data prepared by various governmental agencies in support of the waterway plan, and since then the White House has issued several statements, largely repetitions of parts of that report, which were also transmitted to the Senate in such a way as to make new stories for the papers. The latest was a statement on January 23 repeating figures used in the report to show that the railroads did very well up to 1929 in spite of the Panama canal, and that if their traffic continues to increase as it did up to 1929 they would not be injured by the diversion of some of the increase to the St. Lawrence.

Because some of these statements use Interstate Commerce Commission statistics they have been reported in many newspapers as if the reports had been made by the commission.

Purchasing Agents Talk Codes

The activities of the Purchases and Stores Division, American Railway Association, with respect to codes and standards are the subject of a bulletin issued to members by Secretary W. J. Farrell on January 16. It summarizes the action taken at regional meetings that were held between December 14 and January 12. At a meeting of the Eastern region, in New York December 14, 1933, under the direction of the group chairman, A. W. Munster, vice-president of purchasing, Boston & Maine, R. L. Lockwood, director, Section of Purchases, Federal Co-ordinator of Transportation, outlined the problems being considered by the co-ordinator's office, in connection with railway purchasing, and stressed the importance of prompt responses by the railroads to requests for information. Codes and standards were also the subjects of meetings held in Chicago on December 19 and January 12 by the Western group, of which D. C. Curtis, chief purchasing officer, Chicago, Milwaukee, St. Paul & Pacific, is chairman, and at Atlanta, Ga., on January 9, by the Southern group, of which J. L. Bennett, purchasing agent, Central of Georgia, is chairman, representatives of the co-ordinator being present. A committee of railroad traffic officers, it was announced, is working with the Traffic Committee of the American Iron and Steel Institute in connection with interpretations of the commercial clauses of the steel code and, in the furtherance of the division's work on codes, the General Committee has urged that all analyses and recommendations referred to the division in connection with codes should be confined to situations arising as a result of codes already adopted and not to preliminary situations developed by tentative or imcomplete codes.

A survey now being made by a committee of the division to determine the extent to which the railroads follow the division's recommended practices indicate reasonably close observance and application of the practices, according to the bulletin, which also contains a statement by G. A. Cooper of the Section of Purchases, Federal Co-ordinator, that 136 railroads, operating 225,422 miles of road, or 93.2 per cent of the Class I mileage, are in favor of the adoption of the simplified invoice form, while 13 roads operating 6.3 per cent of the mileage, are opposed to it. The Eastern Regional Co-ordinating Committee, in accepting the recommendations of the Railway Accounting Officers' Association and the Purchases and Stores Division, reported that "with a few minor reservations with reference to purchases from small suppliers, the railroads in this co-ordinating region have given their unanimous consent to the rules approved by the co-ordinating committee".

Club Meetings

The Toronto (Ont.) Railway Club will hold its next meeting at the Royal York Hotel, Toronto, on Friday evening, February 2, at 7:45. There will be a paper on steel processing, illustrated, by F. A. Sherman.

The Indianapolis (Ind.) Car Inspection Association will hold its next meeting at the Severin Hotel, Indianapolis, on Monday evening, February 5, at 7 o'clock. L. K. Sillcox, of the New York Air Brake Company, will present a paper on the A B air brake.

The North West Car Men's Association (St. Paul) will hold its next meeting on Monday evening, February 5, at the Y. M. C. A. gymnasium, Minnesota Transfer. The discussion will be on the A. R. A. committee report on proposed changes in rules; also there will be a discussion on the new loading rules.

The Pacific Railway Club will hold its regular meeting at Hotel Oakland, Oakland, Calif., on Thursday evening, February 8, at 7:30 o'clock. This will be annual electric railway night. The speakers will be C. L. Seavey, president of the Railroad Commission of California, and Albert Strandberg, engineer of the Key System.

The Car Foremen's Association of Chicago will hold its next meeting on Monday evening, February 12, at the LaSalle Hotel, Chicago. There will be a paper by C. J. Nelson, superintendent of the Chicago Car Interchange Bureau, on changes in the A. R. A. loading rules.

The New England Railroad Club will hold its next meeting at the Copley-Plaza Hotel, Boston, on Tuesday evening, February 13, beginning with a dinner at 6:30 o'clock. G. A. Phillips, chief engineer of

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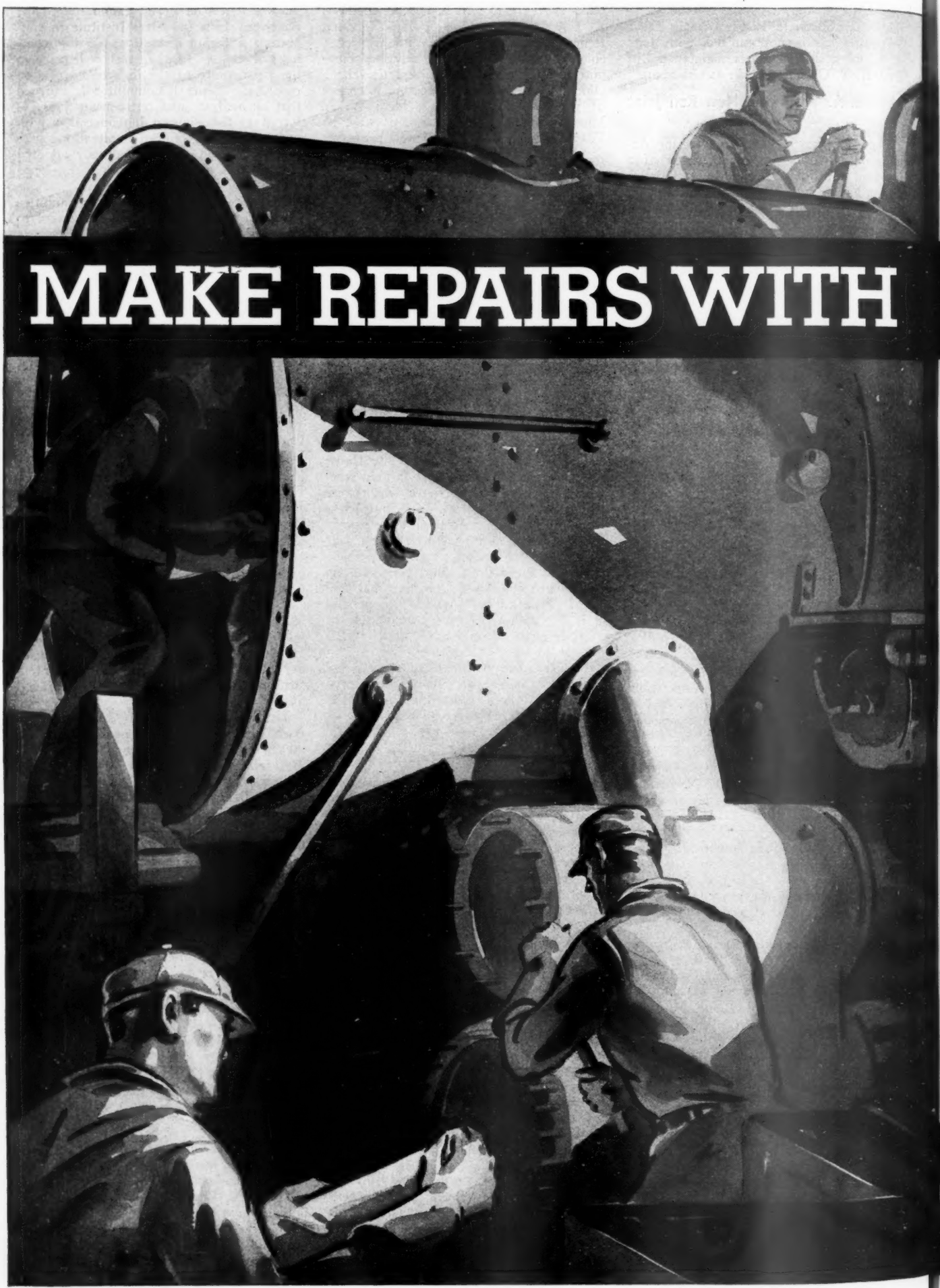
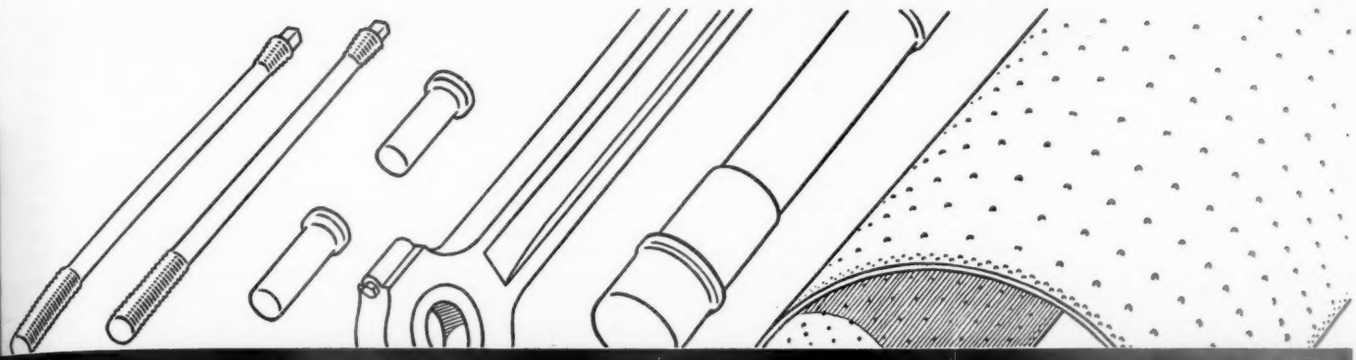

MAKE REPAIRS WITH



MODERN MATERIALS

Even a 15-year old locomotive will do a better job if repaired with modern materials. » » » Replace leaky bolts with modern Republic alloy steel staybolts that have greater fatigue resistance to meet today's conditions. » » » Pins, rods and axles should be made of modern Agathon Alloy Steels for greater strength and freedom from cold brittleness. Alloy firebox sheets will give longer service thru improved resistance to fire-cracking and corrosion. » » » Agathon Nickel Iron for case-hardened parts has a tough core while taking a hard surface. It will reduce wear on bushings. » » » These are only a few of the metallurgical developments of Republic Steel Corporation that mean longer service and lower future maintenance. » » » Consult with Republic on problems involving materials.

Toncan Iron Boiler Tubes, Pipe, Plates, Culverts, Rivets, Tender Plates and Firebox Sheets • Sheets and Strip for special railroad purposes • Agathon Alloy Steels for Locomotive Parts • Agathon Engine Bolt Steel • Agathon Iron for pins and bushings • Agathon Staybolt Iron • Climax Steel Staybolts • Upson Bolts and Nuts • Track Material, Maney Guard Rail Assemblies • Enduro Stainless Steel for dining car equipment, for refrigeration cars and for firebox sheets • Agathon Nickel Forging Steel.

CENTRAL ALLOY DIVISION, MASSILLON, OHIO

AGATHON STEELS

REPUBLIC STEEL CORPORATION

GENERAL OFFICES YOUNGSTOWN, OHIO

AGATHON NICKEL IRON

maintenance, Lehigh Valley, will present a paper on "A Proper Investment Will Yield a Return."

The Central Railway Club of Buffalo (N. Y.) will hold its next regular meeting on Thursday evening, February 8, at the Hotel Statler, Buffalo. This will be known as maintenance of way night, and there will be a paper on gang organization by I. H. Schram, engineer of maintenance of way, Erie, Jersey City, N. J. The new president of the Central Railway Club is M. L. Campbell, operating manager of the International Railway.

The Traffic and Transport Association of Pittsburgh (Pa.) will hold its twentieth annual dinner at the William Penn Hotel, Pittsburgh, on Thursday, February 1. The speakers will be Hon. John G. Cooper, Congressman from Ohio and member of the House committee on interstate and foreign commerce, and General Smedley D. Butler.

Compromise as to Railroad Claims on Bonnet Carre Spillway Crossings

The Secretary of War has announced the termination of the long-contested settlement of the cost of railroad crossings over the Bonnet Carre spillway in Louisiana. This spillway, located about 30 miles above the city of New Orleans, will be opened in times of high flood in the Mississippi river, and will release from the river flood waters in excess of the amount that can be safely passed between the levees without danger to the city and without disrupting the port facilities and operations. The computed maximum flow which must be passed through the floodway is 250,000 cubic feet per second, an amount which exceeds the ordinary flow over Niagara Falls. This discharge will be controlled by a gate structure 7,698 ft. in length, which has already been completed. It will pass through a wide leveed floodway channel to Lake Ponchartrain, and through the ample outlets of this lake into the Gulf of Mexico. The spillway will effectively safeguard the 400,000 inhabitants of New Orleans against all hazard of flood.

The floodway channel is crossed by three railroads, these being the double-track main line of the Illinois Central and the single-track lines of the Louisiana & Arkansas and the Yazoo & Mississippi Valley. These railroads must construct long pile bridges across the floodway in order that service may not be interrupted when the floodway is in operation. Negotiations with the railroads looking to the settlement of the cost of these crossings was begun in 1929. The claims of the railroads were considered excessive, and suits were therefore instituted in the district court in June, 1930. The claims presented by the railroads to the commissioners appointed by the court aggregated $8,436,000. After protracted hearings the commissioners returned awards aggregating $6,673,057, and these awards were adopted by the court as a basis for judgment. Since these amounts were considered excessive by the War Department, appeals were taken by the government.

Realizing the pressing public need for prompt termination of these cases, the Secretary of War directed General Markham, the Chief of Engineers, to open direct negotiations with the companies. As a result of these negotiations, compromise settlements aggregating $4,332,736 were agreed to, a saving to the United States of $2,340,321, with the agreement that these funds would be at once applied to the construction of the bridges. "The fair and constructive attitude of the railroad companies in these negotiations merits commendation," the War Department announcement stated. Through the action of the Department of Justice, interlocutory decrees in favor of the United States have been entered, the awards have been deposited with the court, and when the individual parties to the action have been served, the entire matter will be closed and final decrees entered.

Secretary Dern has been advised that work on the construction of the railroad bridges across the spillway will be commenced at once by the railroad companies and that approximately three thousand men will be employed on the work.

Fruit and Vegetable Shippers Meet at Chicago

Restrictions placed on shippers in the routing of cars, the simplification of railroad freight tariffs, liberalization of the demurrage rule, and similar matters were considered at the sixteenth annual business meeting of the American Fruit and Vegetable Shippers' Association at Chicago on January 16-19. A report submitted by E. A. Whiting, traffic manager of the S. A. Gerrard Company, Cincinnati, Ohio, opposed for the present any regulation of the rates of water carriers and also recommended against requiring water carriers to secure certificates of convenience and necessity. The report did recommend, however, that vigorous efforts be put forth to have the government discontinue its operations on the inland waterways. Excerpts from the report follow:

"Your committee favors consolidation of fruit terminals, with the provision that all carriers entering the same market be accorded the privilege of using the said joint terminal facilities on the basis of through rates.

"Railroad freight tariffs are sometimes next to impossible of correct interpretation and the committee recommends that the railroads through their various tariff bureaus set about simplifying their tariffs. We recommend that the association favor uniformity of storage in transit charges within the same groups of states that compete in the distribution of specific commodities during the same seasons, and that these charges be on a reasonable basis, in keeping with present-day conditions.

"The matter of reconsigning rules and charges on fresh fruits and vegetables has again come prominently to the front and apparently is being agitated in all sections of the country. The committee recommends that if the carriers insist upon limiting free diversions that the association be authorized to reach an understanding with the carriers that will enable our industry to secure uniformity for diversions without charge.

"The matter of circuitous movement of our commodities that are under reconsignment was also considered and the committee believes that no further restrictions should be placed on the marketing of our products. We also understand that the railroads are considering the fixing of rules and penalties that will prevent any escape, through reconsigning privilege, from legitimate demurrage charges. It is suggested that, if the railroads prior to public hearing will arrange for conference with the association and representatives of our industry, shippers will endeavor to work out something that will prevent abuses of this character.

"We believe that carriers' protective service should be restored as an alternative to heater service, and recommend that an appeal be made to the Perishable Freight committee for the restoration of this privilege.

"There has been no justification within the past three years for a demand on the part of the carriers, for prompt release of equipment; therefore, demurrage as a penalty for the use of equipment is no longer necessary. We believe that under these conditions carriers should liberalize average agreement rules, and recommend that the secretary take such action as is deemed necessary to secure the desired result."

Construction

ERIE.—The New York Public Service Commission has approved as not excessive bids covering certain materials and work in connection with the elimination of this road's grade crossings west of the Chemung river in Elmira, N. Y., as follows: G. H. & J. P. Kelly, Elmira, covering electrical work amounting to $11,570; for furnishing and delivering structural steel and wrought iron downsprouts for platform canopies and elevator shaft at the passenger station, R. S. McManus Steel Construction Company, $10,709, and for furnishing and delivering pipe hand rails and fittings for the station platform, Atlas Pipe Railing Comany, $605. The railroad company was directed to award the necessary contracts and begin the work as soon as practicable.

MISSOURI-KANSAS-TEXAS—ST. LOUIS-SAN FRANCISCO—Wyandotte county, Kan., has awarded a contract to the J. A. Tobin Construction Company and Dan Sherrer, Kansas City, Mo., for the construction of a reinforced concrete and steel viaduct to carry Seventh street, Kansas City, Kan., over the tracks of these companies between Humboldt road and Southwest boulevard at a cost of $266,924.

PENNSYLVANIA—NEW YORK, CHICAGO & ST. LOUIS—NEW YORK CENTRAL.—Orders providing for the elimination of the grade crossings of the Pennsylvania and the New York, Chicago & St. Louis on Farnham-Irving State Highway in the town of Brant, Erie County, N. Y., and providing for the manner in which the highway shall cross the New York Central at this point

have been affirmed by the New York Public Service Commission. The orders as affirmed provide for the elimination of these crossings at an estimated cost of $324,000. The existing undercrossing of the New York Central will be improved and enlarged in this elimination project.

SPOKANE, PORTLAND & SEATTLE—This company has commenced the construction of a 2,000,000-bushel grain elevator at Vancouver, Wash., which, when completed, will be leased to the Pacific Continental Grain Company. A contract has been awarded to the Parker-Schram Company, Portland, Ore., for the excavation and the driving of the piling. There are approximately 200,000 lin. ft. of piling to be driven, involving about 4,700 piles. The contract for the main structure has not yet been awarded. The project will involve an expenditure of about $1,000,000.

Equipment and Supplies

Progress on P. W. A. Loans

Contracts between the Public Works Administration and the Lehigh Valley and the New York, New Haven & Hartford covering the loans of $2,000,000 and $3,500,000 respectively which were allotted to those roads on December 9 for repairs and improvements to equipment were signed on January 20 and 22 and the Lehigh Valley has notified the administration that work to be done with the proceeds of the loan will begin at its Sayre and Packerton shops on March 1. The final procedural step having been taken in connection with the Pennsylvania loan of $77,000,000 that company now expects to begin work on the projects next week.

The Interstate Commerce Commission on January 22 approved the application of the Pennsylvania for authority to issue $45,000,000 of 30-year secured 4 per cent serial bonds and to assume obligation and liability in respect of $32,000,000 of equipment trust certificates to be issued by the Fidelity-Philadelphia Trust Company, to be delivered from time to time to the United States government in connection with the Public Works Administration loan for completing the electrification work and the acquisition of 7,000 freight cars and 101 electric locomotives.

The commission on January 17 approved the expenditure of $1,350,000 by the New York, New Haven & Hartford, for which it had been allotted a loan by the P. W. A. for the purchase of 25,000 tons of 112-pound rail and about 10,000 tons of fastenings.

The Boston & Maine has applied to the commission for authority for the expenditures to be made with the proceeds of a loan allotted to it by the P. W. A. to the amount of $3,330,000, including the purchase of 30,000 tons of 112-pound and 131-pound rails and the necessary fastenings, repairs to 25 locomotives, general repairs to 818 freight cars and 80 passenger cars, air-conditioning of 10 cars and new seats for 10 cars.

The Erie has applied to the commission for authority to issue $11,964,000 of equipment trust certificates, to be taken by the P. W. A. in connection with the acquisition of 2,500 hopper cars, 500 box cars, 500 automobile cars, 100 furniture cars, 50 convertible hopper cars, 125 flat cars, 125 passenger cars and 8 mail cars.

The Kansas, Oklahoma & Gulf has applied to the commission for authority to issue $265,000 of 4 per cent serial notes to the P. W. A., covering its loan for the purchase of 5,183 tons of rails.

FREIGHT CARS

JOHN MORRELL & Co. have ordered 150 refrigerator cars of 40 tons' capacity from the General American Car Company.

PASSENGER CARS

Recent Air-Conditioning Orders

Orders placed for air-conditioning equipment to be installed in railroad-owned cars during the last few months have been more numerous than at any time heretofore. Orders placed by the railroads with the Pullman Car & Manufacturing Corporation recently are as follows:

Seaboard Air Line—15 cars, including 5 coaches, 5 coach-baggage cars, 3 coach-dining cars and 2 observation-dining cars.

New York Central—58 cars, including 36 dining cars and 22 coaches.

Great Northern—12 dining cars.

Northern Pacific—19 cars, including 9 dining cars and 10 observation cars.

In addition to these, air-conditioning equipment is being installed in 480 sleeping cars for use on the Chicago, Rock Island & Pacific, the Seaboard Air Line, the Pennsylvania, the New York Central, the Chicago, Burlington & Quincy, the Great Northern and the Delaware, Lackawanna & Western.

The Atchison, Topeka & Santa Fe has ordered air-conditioning equipment for 26 passenger cars from the Safety Car Heating & Lighting Company. The cars involved include 14 dining cars, 10 lounge cars and 2 cafe cars, and the equipment will be installed in the company's shops at Topeka, Kan.

IRON AND STEEL

THE LOUISIANA & ARKANSAS has ordered 3,600 tons of structural steel for the Bonnet Carre spillway bridge at Naco, La., from the Laclede Steel Company.

MISCELLANEOUS

THE ATCHISON, TOPEKA & SANTA FE has ordered from the Safety Car Heating & Lighting Company equipment for air-conditioning 26 additional passenger cars, comprising 14 dining cars, 10 lounge cars, and two cafe cars. The new program will bring the total number of air-conditioned cars on the Santa Fe to 49.

Supply Trade

Code Approved for Railway Safety Appliance Industry

Gen. Hugh S. Johnson, administrator of the N. R. A., has approved the code for the railway safety appliance industry, comprising the design, development, manufacture, sale, and installation of power brake, signal and train-control systems, and parts. The code provides that eight hours shall constitute the normal number of working hours per day and 40 hours the normal number per week, and that employees shall not be permitted to work in excess of an average of 40 hours a week in any four months' period. The minimum rates of pay for production labor are fixed at 40 cents an hour for men and 35 cents for women. A report accompanying the code states that the investment in the industry is approximately $113,000,000 and the number of wage earners in normal times is about 11,000 with an estimated annual payroll of $20,000,000.

The Inland Steel Company, Chicago, has appointed the **Pidgeon-Thomas Iron Company,** Memphis, Tenn., its exclusive agents for the sale of steel sheet piling in Memphis and the surrounding territory of western Tennessee.

F. Stanley Jones has been appointed sales manager of wire products, **W. H. Messner** sales manager of rolled products, and **George Tritch** assistant manager of sales for the steel division of the **Colorado Fuel & Iron Products Company,** Denver, Colo.

B. R. Wetherby, 404 Donovan building, Detroit, Mich., has been appointed Michigan representative of Huron washout plugs and other railroad and industrial specialties manufactured by the **Huron Manufacturing Company,** Detroit. Mr. Wetherby will handle also certain roads in the Ohio district.

J. B. Durkee has been appointed manager of the Houston, Tex., office of the **A. M. Byers Company,** Pittsburgh, Pa. Mr. Durkee formerly represented the company in the Houston territory and more recently in Tulsa, Okla. He succeeds **H. B. Weathersby,** who died on December 19.

The Superior Engine Company, Springfield, Ohio, which has borne this name for 45 years, has become **The National-Superior Company.** The change is in name only, there being no change in the management and the product continuing to be stationary and marine Diesel and gas engines, compressors, etc., as heretofore.

Charles H. Rhodes has been appointed assistant general manager of sales in charge of bars and alloy steel of the **Illinois Steel Company,** Chicago, to succeed **William I. Howland, Jr.,** who has been appointed vice-president and general manager of sales. Mr. Rhodes was born in New Castle, Pa., and entered the service of the American Steel & Wire

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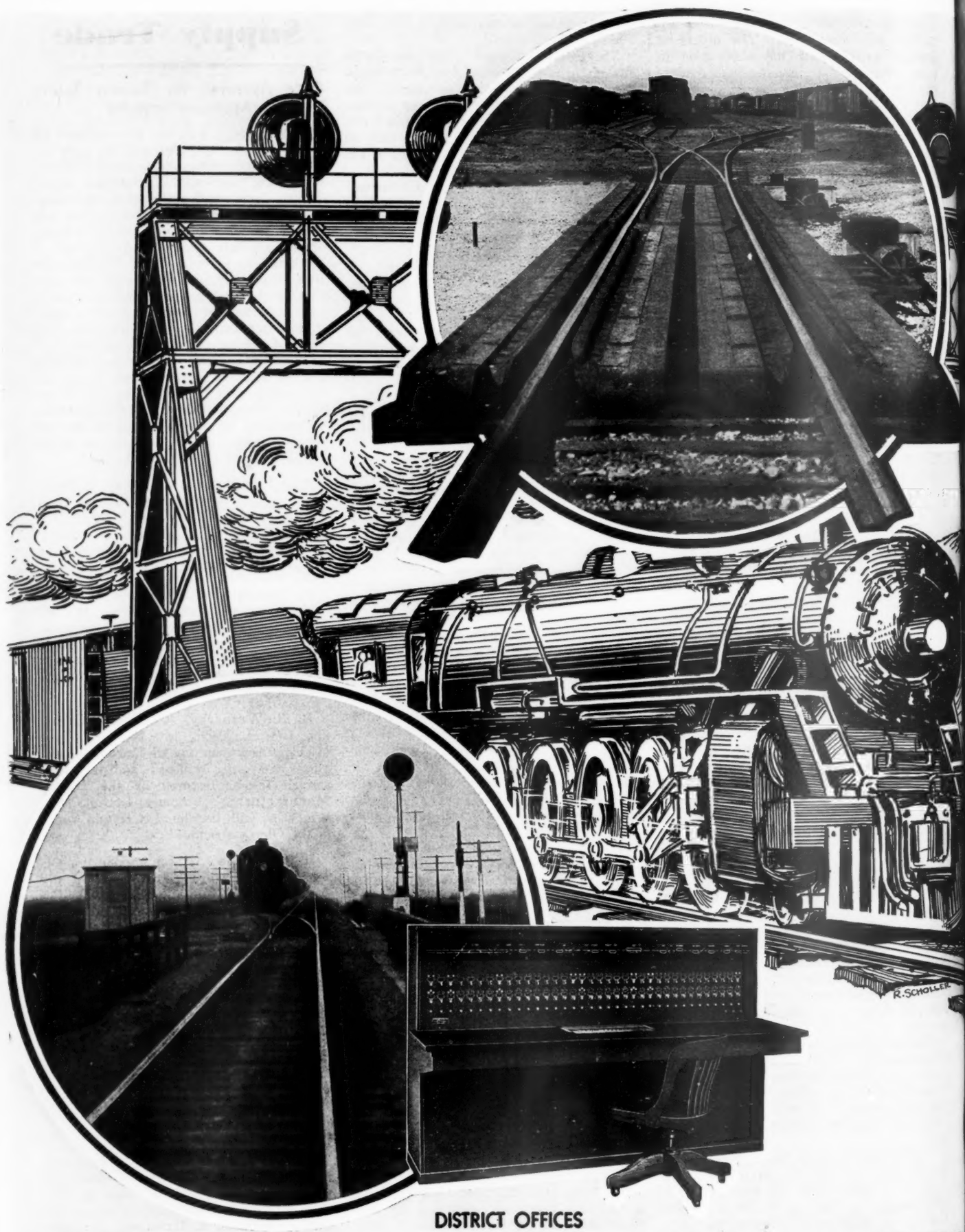


DISTRICT OFFICES

NEW YORK MONTREAL CHICAGO ST. LOUIS SAN FRANCISCO

Operating Statistics Prove:

That improvement in freight train performance parallels the increase in road miles signaled.

That the roads showing the greatest reduction in the cost per gross ton miles and the greatest increase in train load and speed, are among those well signaled*; indicating that able management has a keen realization of the value of signaling as an adjunct to efficient operation.

That continuance of the improvement in operating efficiency may be expected from increased signal mileage; greater use of remotely controlled switch machines; the extension of centralized traffic control; cab signals or car retarders.

That the greatest average increase in train load occurred on the roads utilizing signaling in an intensive manner.

The signal equipment and apparatus manufactured by the Union Switch & Signal Company is built for a long life of efficient, reliable and economical service.

Bulletin No. 8, "Improvement in Freight Train Performance by 47 Roads."

1881 **Union Switch & Signal Co.** 1934

SWISSVALE, PA.

Company in 1899. Since that time he has served with subsidiary companies of the United States Steel Corporation as purchasing agent of the American Steel & Wire Company, the Canadian Steel Corporation, the Minnesota Steel Company, the Universal Portland Cement Company and the Illinois Steel Company.

A. B. Nilsen, formerly with the late Fred K. Shults, New York, for nine years, has succeeded Mr. Shults with the **Bettendorf Company,** Bettendorf, Ia., and the **MacLean-Fogg Lock Nut Company,** Chicago, as sales representative for these companies in the eastern territory. Mr. Nilsen continues at the same address, Room 2043, Grand Central Terminal, New York City.

Harry J. Newton has been appointed traffic manager of the **Central Iron & Steel Company,** Harrisburg, Pa., with headquarters in the company's main office at Harrisburg. Mr. Newton has severed his active connection with the Traffic Service Bureau of Harrisburg, which he organized eight years ago. L. M. Nickey formerly with the Pennsylvania Railroad, has been appointed assistant to Mr. Newton.

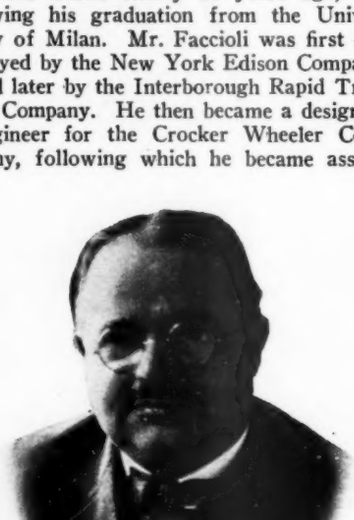
John H. Trent has been elected vice-president of the **Johns-Manville Sales Corporation,** with headquarters at New York. He was previously general sales manager in charge of the transportation and government sales. Mr. Trent was born in Meade County, Ky., and was educated in the public schools of Paducah, Ky. In 1901, he entered the service of the Illinois Central and after serving in the mechanical and stores departments of the Burnside

John H. Trent

shops, Chicago, he became storekeeper at Water Valley, Miss., subsequently serving at Memphis, Tenn., and Paducah, Ky. Mr. Trent has been associated with the Johns-Manville Sales Corporation and its predecessors for over 25 years having served as sales manager of the western region with headquarters at Chicago, prior to his appointment as general sales manager in charge of the entire sales of the Transportation and Government departments with headquarters at New York. Mr. Trent in his present capacity will be in charge of all functions of the Transportation department in the United States and Canada embodying steam railroads, electric railway, motor bus and aviation divisions.

OBITUARY

Giuseppe Faccioli, former works engineer and associate manager of the Pittsfield, Mass., works of the General Electric Company, died in Pittsfield on January 13, as was reported in the *Railway Age* of January 20. Mr. Faccioli was born in 1877 at Milan, Italy. He came to the United States nearly 30 years ago, following his graduation from the University of Milan. Mr. Faccioli was first employed by the New York Edison Company, and later by the Interborough Rapid Transit Company. He then became a designing engineer for the Crocker Wheeler Company, following which he became associ-



Giuseppe Faccioli

ated with William Stanley. When the Stanley firm was absorbed by the General Electric Company, Mr. Faccioli became associated with the railway department of the latter company at Schenectady, N. Y., and later at Pittsfield. In 1913 he was appointed works engineer of the Pittsfield plant, and in 1927 became associate manager. Mr. Faccioli spent considerable time at Schenectady, where he was associated with the late Dr. Charles P. Steinmetz, whose researches in the field of lightning became famous. These studies, continued at Pittsfield by Mr. Faccioli, contributed largely to the success of the high voltage laboratory there. Like Steinmetz, with whom his name was so often linked, Mr. Faccioli was a cripple; unable to walk, he was wheeled around his laboratory and office.

George J. Martin, eastern representative of the Union Asbestos & Rubber Company and the Equipment Specialties Company, with headquarters in New York, died in that city on January 16, after a lingering illness. Mr. Martin had been connected with these companies at Chicago and New York for the last 10 years.

Roy J. Cook, who retired in 1931 as president of the **Keyoke Railway Equipment Company,** Chicago, died suddenly on January 17. Mr. Cook was born at Kirkville, Iowa, on March 28, 1879. Early in his career he was employed by the Chicago, Burlington & Quincy, and in 1912 he became connected with the Keyoke Railway Equipment Company. Mr. Cook was made vice-president and general manager of this company in 1922 and was elected president in 1928. from which position he retired in 1931.

Samuel M. Hindman of the Schaefer Equipment Company, Pittsburgh, Pa., died on January 2, after a long illness at the age of 61 years. Mr. Hindman had been connected with the Schaefer Equipment Company for the past 15 years. Prior to that time he had served in various official capacities with the car department of the Pennsylvania.

TRADE PUBLICATIONS

T-TRI-LOK BRIDGE FLOOR CONSTRUCTION.—The Carnegie Steel Company, Pittsburgh, Pa., has issued a highly attractive and informative catalog of 46 pages, describing and illustrating T-Tri-Lok bridge floor construction, a grillage formed of interlocked inverted tee-like sections and bars, designed to be filled in with concrete. While the design is featured principally for highway bridges, it is advocated for use on ballasted deck railway bridges, and the advantages in such applications are clearly pointed out.

TONCAN IRON PIPE FOR PERMANENCE.—The Republic Steel Corporation, Youngstown, Ohio, has published a 64-page attractively printed and illustrated booklet bearing this title which contains complete information regarding Toncan iron pipe. The booklet is divided into two principal parts. Part I, entitled Technical Data and Tests, outlines the development of Toncan copper molybdenum iron, gives its advantages as a pipe material, shows the results of tests designed to determine the resistance of this metal to various destructive agencies, and discusses its welding properties. Part II, entitled Installation and Service Records, contains a list and many illustrations of the buildings, plants and other projects in which Toncan iron has been employed in some manner.

Financial

BOSTON & MAINE.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon 25 miles of its Keene branch between Keene, N. H. and Elmwood.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC. — *Abandonment and Trackage Rights.*—The Interstate Commerce Commission has authorized this company to abandon its line between Ayres, Ill., and Ebner, 8.6 miles, and to operate under trackage rights over the C. B. & Q. between these points. The construction of two short connecting tracks will be required.

CHICAGO, ROCK ISLAND & PACIFIC.—*Abandonment.*—The Interstate Commerce Commission has authorized the trustees to abandon the line between Rushville, Mo., and Wallace, 11.87 miles.

CHICAGO, ROCK ISLAND & PACIFIC.—*Abandonment.*—The trustees have applied

to the Interstate Commerce Commission for authority to abandon the line from Wilton, Ia., to Muscatine, a distance of 11.88 miles.

CHICAGO, ROCK ISLAND & PACIFIC.—*Abandonment and Joint Operation.*—The Interstate Commerce Commission has authorized the St. Joseph & Grand Island (a subsidiary of the Union Pacific) to abandon approximately 6.5 miles of line between Wathena, Kans., and Troy and the Rock Island to abandon 6.73 miles of its line from Elwood to the point where the Grand Island abandonment near Wathena begins. The two companies will operate under trackage rights over each other's lines over the sections where their own lines are abandoned.

ELBERTON & EASTERN.—*Abandonment.*—The Interstate Commerce Commission has authorized the receiver of this company to abandon as to interstate and foreign commerce this company's line extending from Elberton, Ga., to Washington, 34.6 miles, together with short segments of trackage rights over the Georgia R. R., and the Seaboard Air Line at Washington and Elberton, respectively.

LOUISVILLE & NASHVILLE.—*Dividend.*—The directors of this company have declared a dividend of $1.50 on its capital stock, payable February 15, to holders of record January 31—the first dividend to be declared since early in 1932.

MAYO & COOK'S HAMMOCK.—*R. F. C. Loan Denied.*—The Interstate Commerce Commission has dismissed this company's application for a loan of $200,000 from the Reconstruction Finance Corporation to be used in constructing a line from Mayo, Fla., to Cook's Hammock, 13 miles, on the ground that the proposed line is not a railroad "in process of construction" within the meaning of the Reconstruction Finance Corporation act.

MERIDIAN & BIGBEE RIVER.—*Trustees' Certificates.*—The Interstate Commerce Commission has authorized this company to issue $744,252 of trustees' certificates to be pledged with the Reconstruction Finance Corporation as collateral security for a loan.

NEW YORK, NEW HAVEN & HARTFORD—*Bonds.*—The Interstate Commerce Commission has authorized the Old Colony Railroad to issue $600,000 of first mortgage, series E bonds in part satisfaction of indebtedness to the New York, New Haven & Hartford for capital expenditures.

NORFOLK & WESTERN.—*Extra Dividend.*—The directors of this company have declared an extra dividend of $2 on its common stock in addition to the regular quarterly dividend of like amount.

NORTHERN PACIFIC.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a line extending from a connection with a branch at Cascade Junction, Wash., to Black Carbon, 3.6 miles.

OREGON & NORTHWESTERN.—*Acquisition.*—This company, newly organized, has applied to the Interstate Commerce Commission for authority to acquire and operate the railroad of the Edward Hines Western Pine Company, from Burns, Ore., to Seneca, 48 miles, and to issue $600,000 of common stock in payment.

PENNSYLVANIA.—*Bonds and Equipment Certificates.*—The Interstate Commerce Commission has authorized an issue of $45,000,000 of 30-year secured 4 per cent serial bonds and $32,000,000 of equipment trust certificates in connection with a loan from the P. W. A. for electrification, cars, and locomotives.

PENNSYLVANIA.—*Dividend.*—Directors of this company have declared a dividend of 50 cents a share on its $50-par capital stock, the first declaration of a dividend since a similar payment was voted a year ago.

PENNSYLVANIA & ATLANTIC.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a branch line extending from Pine Beech, N. J., to Island Heights, 1.2 miles.

PIONEER & FAYETTE.—*R. F. C. Loan.*—The Interstate Commerce Commission has approved a loan of $10,000 to this company from the Reconstruction Finance Corporation to be used in part payment for 13 miles of line from Pioneer, Ohio, to Fayette, formerly operated by the Toledo & Western.

ST. LOUIS-SAN FRANCISCO.—*Abandonment.*—The applications recently filed with the Interstate Commerce Commission for authority to abandon branch lines between Weir City and Mackie, Kan., and Mt. Vernon and Greenfield, Mo., have been withdrawn.

ST. LOUIS-SAN FRANCISCO.—*Abandonment.*—The Interstate Commerce Commission has authorized the receivers of this company to abandon a branch extending from Bangert, Mo., to De Camp, 12.8 miles. The Commission has also authorized this company to abandon a 4.5-mile line between Wardell and Fraily, Mo.; a 4-mile line between Yukon and Deering Junction, and an 8.9-mile line between McDougal, Ark., and Tipperary.

SAN ANTONIO, UVALDE & GULF.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon its line between Gardendale, Tex., and Fowlerton, 26.1 miles.

SOUTHERN PACIFIC.—*Consolidation of Texas and Louisiana Lines Authorized.*—The Interstate Commerce Commission on January 19, announced its report authorizing the consolidation of the Texas & New Orleans and 13 other subsidiaries of the Southern Pacific operating a total of 4,513 miles, to consolidate their properties into one corporation for ownership, management, and operation, subject to a condition that the companies agree to acquire the properties of the Fredericksburg & Northern, a 24-mile line, if the commission shall hereafter determine it to be in the public interest, at the commercial value of the properties. No change in the existing capitalization is contemplated. It is proposed that the Texas & New Orleans purchase the properties of the other companies, issuing additional common stock of an aggregate par value of $59,646,000 in exchange for the outstanding stock of the selling companies, par for par. No opposition to the general plan was presented. The merging of the corporations, the commission said in the report, will effect economies by eliminating expense required for the maintenance of 14 separate corporations but the paramount reason for consolidation is that it is essential for the financing of the corporate properties. With the consolidation, bonds can be issued under a mortgage covering the entire railroad property constituting the Southern Pacific system in Texas and Louisiana. It is contemplated that a first and refunding mortgage will be placed upon the consolidated properties which will be the vehicle whereby funds can be secured for the refunding of their outstanding indebtedness and bond maturities, and to provide for additions and betterments from time to time. The companies included are: the Texas & New Orleans; the Louisiana Western; the Morgan's Louisiana & Texas; the Iberia & Vermillion; the Franklin & Abbeville; the Lake Charles & Northern; the Houston & Shreveport; the Galveston, Harrisburg & San Antonio; the Houston & Texas Central; the Houston East & West Texas; the San Antonio & Arkansas Pass; the Dayton-Goose Creek; the Texas Midland, and the Gulf & West Texas. The Texas & New Orleans has been operating the properties under lease. Commissioner Mahaffie, dissenting in part, objected to the condition as to the acquisition of the Fredericksburg & Northern, stating that it is the commission's duty to help secure economy. Commissioners Aitchison and Tate concurred in his expression. Commissioner Miller dissented.

SUPERIOR & SOUTHEASTERN.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon the operation of its line extending 22 miles southerly from Loretta, Wis.

Average Prices of Stocks and of Bonds

	Jan. 23	Last week	Last year
Average price of 20 representative railway stocks..	45.79	44.02	25.50
Average price of 20 representative railway bonds..	73.81	72.47	58.13

Dividends Declared

Cincinnati Northern.—$6.00, semi-annually, payable January 31 to holders of record January 20.

Columbus & Xenia.—$1.10, payable March 10 to holders of record February 26.

Erie & Kalamazoo.—$1.63, payable February 1 to holders of record January 26.

Kansas City, St. Louis & Chicago.—6 Per Cent Guaranteed Preferred, $1.50, quarterly payable February 1 to holders of record January 19.

Louisville, Henderson & St. Louis.—$4.00, semi-annually, payable February 15 to holders of record February 1.

Louisville & Nashville.—Common, $1.50, payable February 15 to holders of record January 31.

Oswego & Syracuse.—$2.25, semi-annually, payable February 20 to holders of record February 6.

Passaic & Delaware.—$1.25, semi-annually, payable February 1 to holders of record January 25.

Piedmont & Northern.—75c, quarterly; Extra, $1.50; both payable January 20 to holders of record January 10.

Norfolk & Western.—Common, $2.00, quarterly; Extra, $2.00, both payable March 19 to holders of record February 28.

Pennsylvania.—50c, payable March 15 to holders of record February 15.

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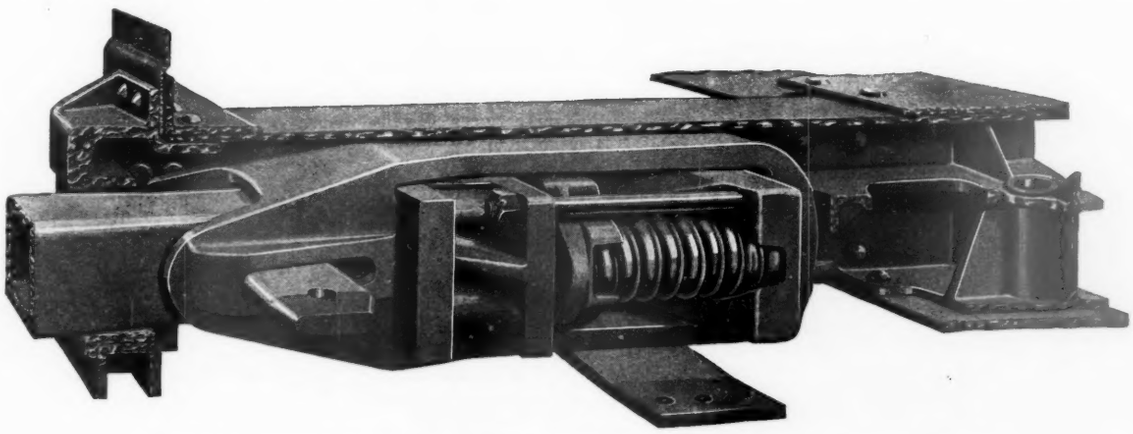
NATIONAL M-17-A DRAFT GEAR

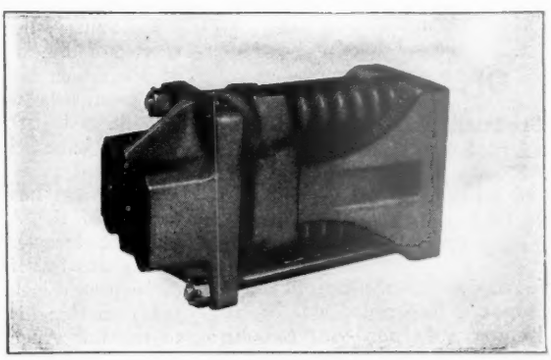


Typical arrangement for A. R. A. Standard Gear Pocket

NATIONAL M-17-A Draft Gears

by the gradual building up of frictional resistance, cushion all the blows with a smoothness of action that ensures the maximum protection to Cars and Lading, and reduces maintenance cost and damage claims.

Initial Spring Compression compensates all frictional wear and makes readjustment of gear unnecessary



The NATIONAL M-17-A is an A. R. A. CERTIFIED GEAR

NATIONAL MALLEABLE AND STEEL CASTINGS CO.

General Office—Cleveland, O.

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco
Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.

Railway Officers

EXECUTIVE

J. L. Burns, assistant to the chairman and president of the Missouri-Kansas-Texas, has been appointed vice-president, with headquarters as before at St. Louis, Mo.

Benjamin McKeen, vice-president of the Pennsylvania, with headquarters at St. Louis, Mo., will retire from active service under the pension regulations on February 1.

Frank H. Ford, who has been appointed assistant to the president of the Kansas City Southern, with headquarters at Shreveport, La., as noted in the *Railway Age* of January 20, has been a director of the Kansas City, Shreveport & Gulf Terminal, a subsidiary of the K. C. S., since 1929. He was born on March 17, 1888, at Queen City Tex., and since 1914 has served successively as vice-president and president of the W. F. Taylor Company, wholesale grocers and planters of Shreveport. Mr. Ford is also president of the Tri-State Broadcasting Company, which operates radio station KTBS.

Frank H. Ford

OPERATING

C. N. Stedman, chief clerk to the general manager of the Coast Lines of the Atchison, Topeka & Santa Fe, has been promoted to assistant to the general manager, with headquarters at Los Angeles, Cal., succeeding **W. H. Brewer,** deceased.

Effective January 16 the jurisdiction of **J. D. Haydon,** superintendent of the Eastern Kentucky division of the Louisville & Nashville, with headquarters at Ravenna, Ky., has been extended to include the Paris and Lexington branch of the Cincinnati division and those portions of the Louisville division as follows: The Lexington branch between Lexington, Ky., and LaGrange; the Shelby cut-off between Christiansburg, Ky., and Shelbyville; the Shelby branch between Shelbyville, and H. K. tower, Anchorage, Ky., and the Bloomfield branch. The jurisdiction of **J. G. Metcalfe,** superintendent of the Cincinnati division, with headquarters at Latonia, Ky., has been extended to include that portion of the Louisville division between Latonia, Ky., and the yard limit board just south of Louisville division mile post T-3, near Frankfort avenue, Louisville. The jurisdiction of **W. O. Dilley,** superintendent of the Louisville division, with headquarters at Louisville, has been extended to include those portions of the Memphis division between Memphis Junction, Ky., and Memphis, Tenn., and between Hematite and Pond, Tenn.

A. B. Scates, division superintendent of the Louisville & Nashville, with headquarters at Memphis, Tenn., has been appointed superintendent of the Evansville division, with headquarters at Evansville, Ind., succeeding **R. E. Kemper,** who has been assigned to other duties. Mr. Scates' jurisdiction will include also that portion of the Memphis division between Owensboro, Ky., and Adairville, Ky.

H. H. Tisdale, trainmaster on the Los Angeles division of the Atchison, Topeka & Santa Fe, has been promoted to superintendent of the Arizona division, with headquarters at Needles, Cal., succeeding **G. W. Simpson,** who has been transferred to the Valley division, with headquarters at Fresno, Cal. Mr. Simpson replaces **C. G. Fluhr,** who has been transferred to the Los Angeles division at San Bernardino, Cal., to take the place of **Richard H. Tuttle,** who has retired, effective February 1.

Mr. Tuttle was born on November 11, 1862, at Milan, Mich., and first entered railway service in 1879 as a night telegraph operator on the Detroit, Hillsdale & Southwestern (now part of the New York Central). Three years later Mr. Tuttle went with the Michigan Central as a clerk at the Union Stockyards at Chicago, and in 1882 he entered the service of the St. Paul, Minneapolis & Manitoba (now part of the Great Northern) as a clerk and operator. From August, 1883, to May, 1884, he served as a train dispatcher on the Union Pacific at Como, Colo., returning to the St. P. M. & M. at the end of this period as a dispatcher at Barnesville, Minn.

In January, 1890, Mr. Tuttle entered the service of the Santa Fe as chief dispatcher at Marceline, Mo., and after 11 years in this position he was transferred to Fresno, Cal., later being promoted to trainmaster with the same headquarters. Later he was transferred to Needles, Cal., and in July, 1906, he was further advanced to superintendent of the Arizona division with the same headquarters. In April, 1913, Mr. Tuttle was transferred to the Albuquerque division at Winslow, Ariz., and after seven years on that division he was transferred to the Los Angeles division at San Bernardino, where he remained until his retirement.

Paul L. Peffer, who has been appointed superintendent of the Buffalo and Cleveland divisions of the New York, Chicago & St. Louis, as noted in the *Railway Age* of January 13, has been connected with this company for more than 24 years. He was born on August 21, 1892, at Fairview, Pa., and entered the service of the Nickel Plate on September 25, 1909, as an operator at State Line, Pa. On March 10, 1911, he was sent to Girard, Pa., as agent-operator, where he remained until July 3, 1916, when he was appointed relief agent on the Buffalo division. On December 9, 1918, Mr. Peffer was promoted to chief clerk to the superintendent of the same division and served in this position until December 21, 1923, except for a period of about six months when he acted as assistant trainmaster. On that date he

Paul L. Peffer

was advanced to night general yardmaster at Buffalo, N. Y., being appointed general yardmaster at Conneaut, Ohio, on June 1, 1926. In November of the same year Mr. Peffer was returned to Buffalo as terminal trainmaster, and on February 14, 1931, he was advanced to assistant superintendent of the Buffalo and Cleveland divisions, holding this position until his promotion to superintendent of these divisions, at Conneaut, on January 1, of this year.

TRAFFIC

Henry W. Landman, division freight and passenger agent of the Missouri-Kansas-Texas, with headquarters at Ft. Worth, Tex., has been appointed assistant general freight and passenger agent, with the same headquarters.

Effective February 1, the following changes will be made in the passenger traffic department of the Baltimore & Ohio. **W. E. Lowes,** assistant to passenger traffic manager with headquarters at Baltimore, Md., has been appointed special representative, with the same headquarters. **J. P. DeVaughn,** general passenger agent at Rochester, N. Y., has been transferred in the same capacity to Pittsburgh, Pa., in charge of the Pittsburgh, Rochester, Buffalo, Cleveland, Akron and Wheeling agencies and territory assigned thereto, and will report to Baltimore. **J. P. Taggart,** assistant general passenger agent, has been appointed special representative, with headquarters as before at Pittsburgh, Pa. **D. L. Moorman,** assistant general passenger agent at Washington, D. C., has been appointed general passenger agent at that point, reporting to Baltimore. **R. C. Haase,** assistant general passenger agent

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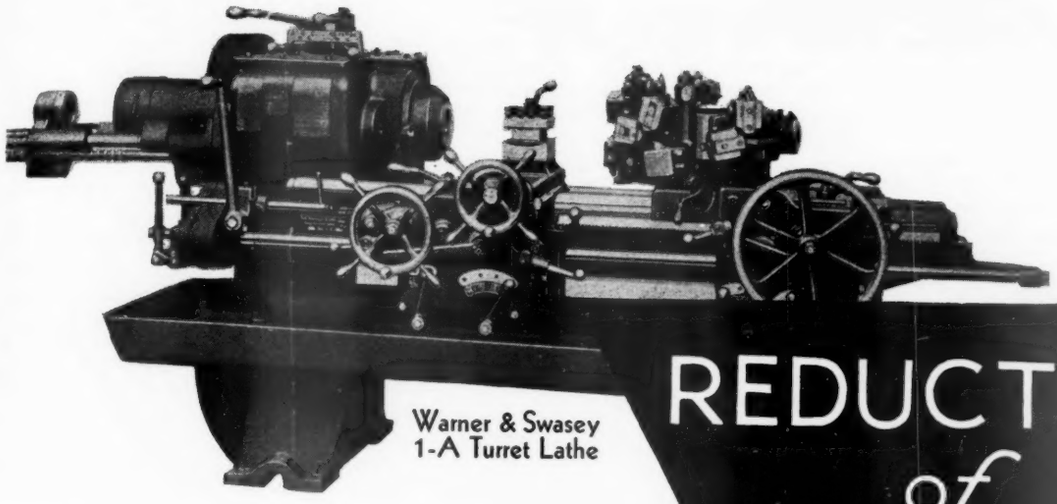

Warner & Swasey
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PIECE by piece the railroad industry is being rapidly overhauled. New methods — new equipment and intensive operation are effecting astonishing economies.

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Cleveland, Ohio, U. S. A.

Boston Buffalo Chicago Dallas Dayton
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has been appointed special representative, with headquarters as before at Philadelphia, Pa.

C. B. Sudborough, general traffic manager, of the Pennsylvania, with headquarters at Philadelphia, Pa., has been appointed assistant vice-president, to be the official representative of the road in St. Louis and the Mississippi valley territory. **John B. Large,** assistant general traffic manager at Philadelphia, Pa., will succeed Mr. Sudborough as general traffic manager at that point. **C. T. Mackenson, Jr.,** freight traffic manager at Philadelphia, will succeed Mr. Large as assistant general traffic manager, and **W. McL. Pomeroy,** general freight agent at Pittsburgh, Pa., has been appointed assistant to the general traffic manager, with headquarters in Philadelphia. **E. S. Neilson,** assistant freight traffic manager at Philadelphia, has been promoted to the position of freight traffic manager, with the same headquarters. **R. H. Miller,** assistant general freight agent at Pittsburgh, Pa., has been appointed general freight agent at that point. **A. E. Johnston,** division freight agent of the Ft. Wayne division, with headquarters at Ft. Wayne, Ind., has been transferred to Pittsburgh, Pa., as assistant general freight agent.

Robert E. Larmour, who retires as general freight agent of the Canadian Pacific on February 28, as reported in the *Railway Age* of January 6, was born at Brantford, Ont., Canada, on September 26, 1868. He was educated at Collegiate Institute, Stratford, Ont., and entered railway service on August 1, 1884, with the Grand Trunk, serving with that road in various positions until November, 1898, when he entered the service of the Canadian Pacific as agent at Ft. William, Ont. From 1903 to 1905, he was freight claim agent at Vancouver and on the latter date he was appointed city freight agent at Winnipeg. From 1906 to 1908, Mr. Larmour was general agent at Ft. William. He was transferred to Nelson, B. C., in the same capacity on the latter date, and the following year he was transferred in the same capacity to Winnipeg. From 1911 to 1915, he was assistant general freight agent at Vancouver, then becoming general agent, freight department, at New York. He was appointed general freight agent at Montreal in 1919 and in 1932 he was transferred in the same capacity to Toronto, in which position he served until the recent announcement of his retirement from active service.

W. G. Brown, general passenger agent for the Baltimore & Ohio, with headquarters at Chicago, has been appointed to the newly-created position of passenger traffic manager, with the same headquarters, in which position he will have charge of the territory west of Buffalo, Pittsburgh and Parkersburg, including the Alton. **W. H. Abel,** passenger traffic manager of the Alton at Chicago, has been appointed a special representative for the B. & O. with the same headquarters, and the position of passenger traffic manager of the Alton has been abolished. **G. W. Squiggins,** general passenger agent on the B. & O. at Cincinnati, Ohio, has been appointed assistant to the general passenger traffic manager, with headquarters at Baltimore, Md. **J. F. Whittington,** assistant general passenger agent at Baltimore, has been promoted to general passenger agent at Cincinnati, to succeed Mr. Squiggins, **E. J. Gleason,** division passenger agent at Detroit, Mich., has been appointed assistant general passenger agent in charge of solicitation at Chicago, succeeding **E. F. Schlottman,** who has been transferred to the general office in that city. **R. A. Pearce,** general passenger agent for the Alton, at Chicago, has been appointed to the same position on the B. & O. at St. Louis, Mo., which is a new position at that point.

Aitken Walker, who has been appointed general freight agent of the Canadian Pacific, with headquarters at Toronto, Ont., was born on August 23, 1885, in Glasgow, Scotland. He was educated in the elementary and high schools of Glasgow and entered railway service with the Glasgow, Barrhead & Kilmarnock Joint Railway in October, 1898, serving in various clerical positions with that road until April, 1904, when he was transferred to the Glasgow & Southwestern (one of the parent companies of the G. B. & K.), where he served in the office of the superintendent of the line until April, 1911. He entered the service of the Canadian Pacific in May of the latter year as clerk in the office of the auditor of stores and mechanical accounts at Winnipeg, Canada. He was transferred to the freight traffic department of the same road as stenographer in July, 1911.

In January, 1912, Mr. Walker was appointed secretary to the assistant freight traffic manager, and in February, 1913, he was appointed soliciting freight agent at Winnipeg. In July of the same year he became chief statistical clerk in the freight traffic bureau at that point. From July, 1914, to January, 1916, he was assistant chief clerk to the assistant freight traffic manager, being promoted to chief clerk to

Aitken Walker

the assistant freight traffic manager on the latter date. He was appointed chief clerk to the freight traffic manager at Montreal in September, 1918, and in September, 1926, he became assistant general freight agent at Montreal, later serving at that point as general freight agent. Mr. Walker was appointed general freight agent to succeed R. E. Larmour, with headquarters at Toronto, on January 1, 1934.

ENGINEERING AND SIGNALING

D. E. Woozley, has been appointed chief engineer of the Union Railroad, with headquarters at East Pittsburgh, Pa., and A. L. Lee has been appointed engineer of bridges, as announced in the *Railway Age* of January 6. In the *Railway Age* of January 20, where a photograph of Mr. Lee, together with a sketch of his career appeared, it was reported erroneously that he had been appointed chief engineer.

G. A. Phillips, chief engineer maintenence of the Lehigh Valley, with headquarters at Bethlehem, Pa., has been appointed chief engineer of the Delaware, Lackawanna & Western, with headquarters

G. A. Phillips

at Hoboken, N. J., succeeding **G. J. Ray,** whose promotion to vice-president and general manager of the D. L. & W. was announced in the *Railway Age* of December 23. Mr. Phillips was born at Dorchester, Mass., on September 28, 1889. He was graduated from the University of Maine in 1911 and entered railway service in February, 1912, with the Lehigh Valley, serving successively as levelman and transitman until September, 1915. At that time he became assistant engineer on the Seneca division, serving in that position until April, 1916, when he was appointed supervisor of track on the M. & H. division of the same road at Delano, Pa. From November, 1916, until August, 1920, Mr. Phillips was division engineer of the M. & H. division with headquarters at Hazleton, Pa., and on the latter date he was transferred in the same capacity to the Seneca division. He was appointed engineer maintenance of way of the Lehigh Valley at Bethlehem, Pa., in April, 1926, and in June, 1929, he was promoted to the position of chief engineer maintenance, with the same headquarters, the position he held at the time of his recent appointment, which becomes effective on February 1.